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**LOW PREVALENCE OF CHLAMYDIA TRACHOMATIS INFECTION IN WOMEN FROM SOUTHERN NIGERIA**

Adesiji Y O¹, Iyere S I² & Ogah I J³

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**Abstract:**
*Chlamydia trachomatis* infections are the most common bacterial cause of sexually transmitted diseases (STDs) in the world. However, most Nigeria health care facilities do not screen for *Chlamydia* antigen in gynaecological and general out-patient clinics. This study was to document the prevalence of *Chlamydia trachomatis* infection in patients attending Family Planning Clinics and Gynaecology clinics in Southern Nigeria. Endocervical swabs were collected from a hundred and forty patients and were screened using Chlamydia Rapid Test Device – Swab / Urine (Interchemical Ltd. China). Out of 140 patients screened, 1 (0.7%) was positive for *Chlamydia trachomatis* antigen. There seem to be an association between *Chlamydia* infection and abortion thus screening for *chlamydia* trachomatis infection in asymptomatic patients to prevent the adverse consequences. This study presents an update in Chlamydia trachomatis in the Southern part of Nigeria.

**Keywords:** Chlamydia trachomatis, prevalence, women, southern, Nigeria

**Introduction:**
*Chlamydia trachomatis* is the most prevalent sexually transmitted bacterial infection worldwide, with an estimated 4-5 million new cases each year. *Chlamydia trachomatis* is the most implicated organism in infertility.¹

Up to 40% of women with untreated Chlamydia develop symptomatic Pelvic Inflammatory Disease and are at high risk of severe complications including chronic pain, ectopic pregnancy and infertility. Chlamydia is also the cause of Trachoma blindness, affecting over 90% of the population in some developing countries.² Untreated cases of chlamydia can spread to the uterus causing pelvic inflammatory disease.¹ In the developing world, laboratory services for sexually transmitted infections (STIs) are either not available, or where limited services are available, patients may not be able to pay for or physically access those services.⁴

When tests are performed in many areas, diagnosis of *C. trachomatis* genital infection is only performed in selected populations and is often based on the presence of clinical symptoms. Considering the high rate of asymptomatic chlamydial infection, particularly in women, a substantial “silent” or undetected epidemic of *C. trachomatis* infections could put this population at significant risk for HIV infection.⁵

In women with previous or invasive *Chlamydia* infection as indicated by the presence of 1gM antibody against *C. trachomatis*, increased rates of preterm delivery, premature rupture of membranes, low birth weight, and still birth have been observed. Infection with *C. trachomatis* is also implicated in post abortal, post Caesarean section, and post partum maternal infections.⁶ Commonly unrecognized and often poorly or inadequately treated, *Chlamydia* infections can ascend the reproductive tract resulting in pelvic inflammatory disease (PID) and, consequently, lead to chronic pelvic pain, ectopic pregnancy, and infertility.⁷ Premarital sexual intercourse
and intercourse with multiple partners have been shown to be significant risk factors for C. trachomatis as well as HIV infection and it is also associated with an increased risk of cervical cancer.\(^\text{7}\)

In many developed countries, screening programmes for Chlamydia have been set up to reduce transmission and reproductive tract morbidity. In most parts of Nigeria, C. trachomatis are not routinely screened for, hence relative information about frequencies of the infection are gotten from individual laboratory reports and research projects of limited study areas.\(^\text{7}\) A study of prevalence of Chlamydia infection in women attending family planning clinic and obstetrics and gynaecological clinic will provide valuable information on evidence for the need to include its screening as a routine antenatal care in our health care facilities. The aim of this study was to determine the prevalence of C. trachomatis in patients attending gynaecological and family planning clinics in Southern part of Nigeria.

**Materials and Method:**

**Study population:** The study population were patients attending Family Planning and Obstetrics and Gynaecology clinics from selected Hospitals in Southern part of Nigeria. They were patients who volunteered to participate in the study. A total of 140 endocervical swabs (ECS) samples were collected from Osogbo in Osun State, 62 samples were collected from the Family Planning clinics, 22 samples from Ladoke Akintola University of Technology Teaching Hospital (L.T.H) and 40 samples from Asubiaro state Hospital, 38 samples were collected from Obstetrics and Gynaecology clinic of Adeoyo Maternity Hospital (A.M.H) and 40 samples were collected from the Family Planning clinic of University of Benin Teaching Hospital (U.B.T.H).

**Sampling technique:** Convenience sampling techniques was used in which women who were willing, and met the inclusion criteria were recruited consecutively during the period of the study; a structured questionnaire was applied after which an informed consent was obtained.

**Sample collection:** Endocervical swabs were collected with the assistance of the medical personnel (The Nurses). Cusco Vaginal Speculum was inserted into the vagina for the visualization of the cervix. A swab stick was inserted through the speculum into the endocervical canal and rotated. This permitted acquisition of columnar or cuboidal epithelial cells which are the main reservoir of Chlamydia organism. It was withdrawn without contamination from exocervical or virginal cells. The swabs were transported promptly to the laboratory and processed within 30 minutes of collection. Structured questionnaire was used to obtained demographic details and other relevant information such as number of sex partner, use of contraceptives, past STDs, educational status, knowledge about the C. trachomatis infection, etc from the participants.

**Sample analysis:** Collected samples were analysed using Chlamydia Rapid Test Device -Swab/Urine (Interchemical Ltd. China). The Chlamydia Rapid Test Device (Swab/Urine) is a qualitative, lateral flow immunoassay for the detection of Chlamydia antigen from female cervical swab, male urethral swab and male urine specimens. In this test, antibody specific to the Chlamydia antigen is coated on the test line region of the test. During testing, the extracted antigen solution reacts with an antibody to Chlamydia that is coated onto particles. The mixture migrates up to react with the antibody to Chlamydia on the membrane and generates a coloured line in the test line region. The presence of this coloured line in the test line region indicates a positive result, while its absence indicates a negative result. To serve as a procedural control, a coloured line will always appear in the control line region indicating that proper volume of specimen has been added and membrane wicking has occurred (Chlamydia Antigen Rapid test). The test procedure was conducted according to the manufacturer’s instruction manual described by Sanders et al.\(^\text{3}\)

**Results:**

Of the one hundred and forty samples screened for Chlamydia trachomatis antigen only one from U.B.T.H was
positive (Table 1). Results as regards subject’s sexual partner in Table 2 revealed that in L.T.H 22 subject had one sexual partner, in Asubiaro; 10 had no sexual partner while 30 had one sexual partner, in A.M.H 38 had one sexual partner and in UBTH 4 had no sexual partner while 36 had one sexual partner. In totality, the majority (127) subjects had one sexual partners while few (13) subjects had no sexual partners. Table 2 also showed the use of contraceptives among subjects. In L.T.H the entire 22 subjects were on contraceptives (18 IUCD and 4 Injectable), amongst subjects in Asubiaro, 30 were on IUCD and 10 with no use of contraceptive, A.M.H 38 of them were not on contraceptives and for U.B.T.H 30 were on IUCD while 10 use no contraceptive. Of all 140 patients, 82 were on contraceptive while 58 did not use. Table 2 further revealed that all (140) patients had no past incidence of STDs.

In term of educational status and knowledge about \textit{Chlamydia trachomatis}, table 3 showed that 18 subjects had tertiary education, 1 with secondary school education, 1 with primary school education and 1 had none in L.T.H. Subjects from Asubiaro, 27 had tertiary education, 10 had secondary education and 2 had primary education. In A.M.H, 22 subjects had tertiary education, 12 had primary education, and 7 had primary education. Among U.B.T.H subjects, 36 had tertiary education and 3 had secondary education. Table 3 also revealed subjects knowledge about chlamydia trachomatis, few (10 subject in total) 3 LTH, 4 ASUBIARO and 3 U.B.T.H had knowledge about the infection.

From the data obtained, the age range with the highest frequency was 30 – 39years having 69 subjects followed by 35 – 39years having 41 subjects and then 25 – 29years having 16 subjects. The least value was obtained from age 45 years and above having 2 subjects, 1 from L.T.H and 1 from U.B.T.H (Table 4). Results of data collected on events in the study sites showed that 15 in totality subjects had dysuria, no cases of pre-matured birth, 6 had miscarriage, 10 were for abortion, 14 were experiencing change in menstrual cycle, and 25 subjects were also for abnormal vaginal discharge treatment. The highest number, subjects (37) were for lower abdominal pain treatment (Table 5).

### Table 1: Shows the number of sample collected from each sites, number of positive results and the incidence.

<table>
<thead>
<tr>
<th>STUDY SITES</th>
<th>SAMPLE COLLECTION</th>
<th>POSITIVE RESULTS</th>
<th>PERCENTAGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.T.H</td>
<td>22</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ASUBIARO</td>
<td>40</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A.M.H</td>
<td>38</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>U.B.T.H</td>
<td>40</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>140</td>
<td>1</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Note: 0 = negative (negative results absence of coloured line) 1 = positive (positive results presence of coloured line)

### Table 2: Frequency distribution of risk factors among female subject in the study sites

<table>
<thead>
<tr>
<th>RISK FACTORS</th>
<th>L.T.H</th>
<th>Asubiaro</th>
<th>A.M.H</th>
<th>U.B.T.H</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of sex partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No sexual partner</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>one sexual partner</td>
<td>22</td>
<td>31</td>
<td>38</td>
<td>36</td>
<td>127</td>
</tr>
<tr>
<td>one and above</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Use of Contraceptives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IUCD</td>
<td>18</td>
<td>30</td>
<td>-</td>
<td>30</td>
<td>78</td>
</tr>
<tr>
<td>Injectable</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>No IUCD</td>
<td>-</td>
<td>10</td>
<td>38</td>
<td>10</td>
<td>58</td>
</tr>
<tr>
<td>Past STDs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No</td>
<td>22</td>
<td>40</td>
<td>38</td>
<td>40</td>
<td>140</td>
</tr>
</tbody>
</table>

### Table 3: Frequency distribution of Educational status and knowledge of Chlamydia trachomatis amongst female subjects

<table>
<thead>
<tr>
<th>Educational status</th>
<th>L.T.H</th>
<th>Asubiaro</th>
<th>A.M.H</th>
<th>U.B.T.H</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary</td>
<td>18</td>
<td>27</td>
<td>19</td>
<td>34</td>
<td>98</td>
</tr>
<tr>
<td>Secondary</td>
<td>1</td>
<td>11</td>
<td>12</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Primary</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>4</td>
<td>-</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>No</td>
<td>19</td>
<td>37</td>
<td>38</td>
<td>38</td>
<td>130</td>
</tr>
</tbody>
</table>

### Table 4: Frequency distribution of age female subjects

<table>
<thead>
<tr>
<th>AGE RANGE (YEARS)</th>
<th>L.T.H</th>
<th>Asubiaro</th>
<th>A.M.H</th>
<th>U.B.T.H</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 24</td>
<td>-</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>25 - 29</td>
<td>10</td>
<td>3</td>
<td>10</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>30 - 34</td>
<td>8</td>
<td>19</td>
<td>20</td>
<td>20</td>
<td>69</td>
</tr>
<tr>
<td>35 - 39</td>
<td>3</td>
<td>15</td>
<td>4</td>
<td>14</td>
<td>41</td>
</tr>
<tr>
<td>40 - 44</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Over 45</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
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Table 5: Frequency distribution of various events in the study sites of female subjects

<table>
<thead>
<tr>
<th>Events</th>
<th>L.T.H</th>
<th>Asubiaro</th>
<th>A.M.H</th>
<th>U.B.T.H</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td>Dysuria</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Miscarriage</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Premature Birth</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Abortion</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Change in menstrual cycle</td>
<td>2</td>
<td>8</td>
<td>-</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Abnormal vaginal discharge</td>
<td>8</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Lower abdominal pain</td>
<td>2</td>
<td>9</td>
<td>14</td>
<td>12</td>
<td>37</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>9</td>
<td>30</td>
</tr>
</tbody>
</table>

Discussion:

This study reports a low prevalence of 0.1% (1/140) in the population sampled across three Western States of Nigeria. Previous report has shown a high prevalence of the *chlamydia* infection in most parts of Africa.¹¹ In most parts of Nigeria, *C. trachomatis* are not routinely screened for, hence relative information about frequencies of the infection are based on laboratory reports and research based findings. Despite the fact that women are at a high risk of infection, earlier report by Harry et al.¹² stated that there is a sociocultural inhibition that prevents women from reporting sexual symptoms, non-availability of facility to detect the organism in many health units and the largely asymptomatic nature of the disease. The positive result was from University of Benin Teaching Hospital (U.B.T.H), where earlier reports of similar studies in the same location were higher.⁷ In north east Nigeria, the report of Amin et al.¹³ on the outcome of opportunistic screening for *Chlamydia trachomatis* in women seen in the antenatal and gynaecology clinics revealed 9% prevalence. In Eastern part of Nigeria, a report by Ikeme et al.⁴ in a study to determine seroprevalence of *C. trachomatis* among population comprised of 136 female undergraduate students and 150 non-student women, reported an overall prevalence of 29.4%. In Lagos Nigeria, Oloyede et al.⁵ reported that *Chlamydia* screening was positive in 14 (18.2%) among 77 women undergoing infertility. In Port Harcourt, Kennedy et al.⁶ reported 11% rate of prevalence of Chlamydia trachomatis infection among female undergraduate of University of Port- Harcourt, Mawak et al.⁷ reported 56.1% of total of 164 total samples from women tested positive for *C. trachomatis* in Jos (North Central, Nigeria). Only Brabin and colleagues⁸ reported a comparable prevalence of 0.5% in 204 girls aged 12±17 years and 8.2% in 206 girls aged 17±19 years in a rural population in South-eastern Nigeria, using cervical specimens.⁸ Possible explanation for lower prevalence obtained from this study could be attributed to several factors such as the lower sample size enrolled in the study, and the detection technique employed, with¹⁹ haven stated that molecular detection methods are often more reliable that other methods. Several studies have shown that the major risk factor for chlamydial infection is sexual activities and it is the commonest sexually transmitted organism throughout the world.²⁰,²¹ In this study, low rate of *Chlamydia trachomatis* among subjects may be due to the fact that majority (127) of 140 screened had on one sexual partner (Table 2). This means that subjects in this category are probably married and no subjects with more than one sexual partner. Also, majority (69) of the subjects were within the range of 30 – 34 years of age. This is in agreement with the previously reported association of *C. trachomatis* infection that it is common in women with a higher number of sexual partners or a new sexual partner²² that age and marital status were considered as factors for variation of incidence of *Chlamydia trachomatis* and Ikeme, et al.¹⁴ indicated that age <30 years were independently significant risk factors for cervical antigen positivity. Other factor observed for low prevalence was high use of IUCD among subjects.²³ The results indicate low sexual activities and high use of contraceptives, no subject indicated any past experience of STDs. However, from personal observation and evidence from literature, women in this part of the world may not disclose information that relates to previous sexual habits and infections out of fear of stigmatization and cultural inhibitions, hence so, observation in this study might not indicate the true occurrence of *Chlamydia* infection.

The positive result from this study was obtained from 32 years woman who has had a previous history of abortion. Thus, there seems to be an association between *Chlamydia* infection and abortion. Although, it is not usually scientifically valid to conclude based on one individual
data, it was also observed from the study that the knowledge about Chlamydia infection is poor among the women attending Family Planning and Obstetrics and Gynaecology clinic in the study sites despite the fact that majority had attained their tertiary educational status (Table 3). This may be because infections are asymptomatic and among the symptomatic cases, it is seldom severe. It was observed that the low level of knowledge about the infection among women could be a contributing factor for acceleration of the spread of Chlamydia infection in other parts of Nigeria.

This study present an update in Chlamydia trachomatis in the Southern part of Nigeria.

References:
4. Peeling RW, Holmes KK, Mabey D, Ronald A. Rapid diagnostic tests for Sexually transmitted infections Rapid tests for sexually transmitted infections (STIs): the way forward. Sex Transm Infect; 2006; 82: 5-1-6

Keywords: Chlamydia trachomatis, prevalence, women, southern, Nigeria - Adesiji Y O
A PILOT TRAIL: EFFECTIVENESS OF BIBLIOThERAPY ON QUALITY OF LIFE, PSYCHOLOGICAL DISTRESS AND DEPRESSION AMONG PATIENT WITH CHRONIC LEG AND FOOT ULCER IN MANGALORE

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Abstract:
Introduction: Many clients living with chronic leg and foot ulcers experience diminished quality of life, pain, psychosocial maladjustment, limited work capacity, and physical disabilities. Bibliotherapy helps the individual to cope up with illness.

Objectives: Assess the pretest level of psychological distress, quality of life and depression in both Interventional and control group. Evaluate the effectiveness of bibliotherapy on quality of life, psychological distress and depression.

Methods: Pilot study was conducted among the twenty patients with chronic leg and foot ulcer. Randomized clinical trial comparison with pair group method was used to evaluate the effectiveness of bibliotherapy. Data were assessed by using chronic wound impact schedule, Kessler’s psychological distress scale and beck depression inventory were used to assess the quality of life, psychological distress and depression respectively. Simple random sampling by lottery method was used to collect the data.

Results: Findings show that there is mean of the quality of life (56.3), distress (28.3) and depression (22.5) were falls on the moderate level among the patient suffering with chronic leg and foot ulcer. Two way analysis of variance proves that bibliotherapy highly significant in increasing quality of life (F=20.3,P<0.001), decreasing the psychological distress (F=25.2,P<0.01) and decreasing depression (F=5.18,P<0.05).

Conclusion. Need based bibliotherapy is effective to meet the psychological aspects of chronic leg and foot ulcer.

Key words: leg and foot ulcer, bibliotherapy, distress, quality of life, Depression

Introduction
Epidemiology and economic burden of the chronic wound was serious endemic in the developed and developing countries in the world.

A recent study in the UK shows that a prevalence of patients with a chronic wound was 3.55 per 1000 population. In the chronic wounds, leg and foot ulcer accounts for the 28% wounds. Prevalence of chronic wounds among hospital inpatients was 30.7% 1. In India it is estimated a prevalence rate of chronic wounds at 4.5 per 1000 population.

The etiology of chronic wounds varies from diabetes, atherosclerosis, tuberculosis, leprosy, venous ulcers, pressure ulcers, vasculitis and trauma2.

In Bangalore Victoria Hospital a clinical study of the ulcer of leg among 200 clients reported that diabetic ulcer accounting for 68 cases (34%) followed by venous ulcer (24%), traumatic ulcer (16%), arterial ulcer (12%) malignant ulcer (5%), tropic ulcer (3%) and others 12 (6%).Ulcers are breaks in the layers of the skin that fail to heal. They may be accompanied by inflammation3.

Chronic leg and foot ulcers are often painful and recurrent, and they can have a negative Physical, physiological, social and psychological impact on clients and families, thus decreasing their quality of life. Leg and foot ulcers are often recalcitrant to healing, tend to recur, and become long-
term chronic healthcare problems. Research reported that chronic physical illness one of the increased risk of depression.

Many clients living with chronic leg and foot ulcers experience diminished quality of life, pain, psychosocial maladjustment, limited work capacity, and physical disabilities.

**Need for the Study**

In India, L H Hiranandani Hospital, world mental health day celebration 2011 reported that patients suffering from a physical illness, especially chronic, tend to develop not just minor mental problems like distress and anxiety, but also major ones like depression, phobias and even sexual dysfunction. About 14-20% of chronically ill patients have psychological problems, apart from minor distress and anxiety.

Pain and stress may slow wound healing through various intricate mechanisms. Psychological stressor that triggers the hypothalamic-pituitary-adrenal axis promoting the production of vasopressin and glucocorticoid (cortisol). Cortisol reduces the immune-inflammatory response, suppresses cellular differentiation and proliferation, and inhibits the regeneration of endothelial cells and delays collagen synthesis.

The psychological impact of chronic physical illness can be prevented by bibliotherapy. Bibliotherapy as defined by the American Library Association is the use of selected reading materials as therapeutic adjuncts in medicine and psychiatry; also, guidance in the solution of personal problems through directed reading.

Bibliotherapeutic intervention may be undertaken for many reasons such as to develop an individual's self-concept; to increase an individual's understanding of human behavior or motivations to foster an individual's honest self-appraisal; to provide a way for a person to find interests outside of self; to relieve emotional or mental pressure; to show an individual that he or she is not the first or only person to encounter such a problem; to show an individual that there is more than one solution to a problem and to help an individual plan a constructive course of action to solve a problem.

In Trinity College, Ireland the study was conducted on bibliotherapy is a form of self-administered treatment in which structured materials provide a means to alleviate distress. Thematic analyses revealed that bibliotherapy schemes are effective in alleviating the distress.

In Indian Scenario need to focus the psychological perspective of patient with chronic leg and foot ulcer. The above literature indicated the therapeutic effect of bibliotherapy on the psychological distress and depression. Researcher interested to know the novel effect of bibliotherapy on psychological distress, quality of life and depression among the patients suffering with chronic leg and foot Ulcer.

**Objectives:**

1. Assess the pre-test level of psychological distress, quality of life and depression in both Interventional and control group.
2. Evaluate the effectiveness of bibliotherapy on quality of life, psychological distress and depression.

**Materials and Methods**

This study is the pilot trail for the main study to evaluate the effectiveness of bibliotherapy on selected psychological variables such as quality of life, distress and depression.

This randomized clinical trial was conducted between March 2013 to June 2013. In the evaluative approach, randomized control trial comparison with parallel group was chosen for this pilot trial. In this trial interventional group were received usual care along with bibliotherapy and control group were received only usual care. Pretest and baseline admission was done 1st day, Post test was administered on 7th day, I follow up on 14th day and II follow up was conducted on 21st day for both interventional and control group.

**Sample & sample size**

Patients those who are fulfilling the sampling criteria.
Sample size comprises of 20 patients with chronic leg and foot ulcer.

Patients suffering with chronic leg and foot ulcer were randomized into interventional and control group by simple random sampling by lottery method.

**Setting**
The study was conducted in K.S Hegde medical college hospital, Mangalore.

**Drawing a protocol**
Bibliotherapy is a use of books in therapeutic context by the researcher based on the Problem solving technique, Coping with the condition, therapeutic regimen and follow up in the form of storytelling, activity exercise, protocol and poetry presentation specific to the chronic leg and foot ulcer caused by the venous ulcer and diabetic foot.

Researcher was started to prepare the intervention after the consultation with the experts and guides .Researcher was conducted a small qualitative study on experiences of patient living with chronic leg and foot ulcer in order to understand need of the person. Based on the findings and after collection of adequate literature the researcher was prepared book for patient suffering with chronic leg and foot ulcer.

This book is a contemporary approach to help the patient deal the problem both mentally and physically. Core concept of the book implies that accepting the illness, create knowledge and motivation of self care, caution about the complication, managing of day to day battle with chronic leg wounds.

Content validity of the book obtained from the experts in the psychiatric, surgical and nursing field .After the validation, the book was translated in both Kannada and Malayalam version. Book was prepared on 8th grade level of reading.

**Sampling criteria**

**Inclusion criteria**
1. Diagnosed as diabetic foot ulcer or venous ulcer.
2. Age between 30years -65years
3. Able to understand and speak either Kannada, Malayalam or English
4. Both male and female.
5. Had the site of ulcer below knee.
7. In all the stages of diabetic foot ulcer or venous ulcer.
8. Underwent all the type of surgical procedure for the diabetic foot and venous ulcer.
9. Patient in the stage of before and after the surgical procedure.
10. Educated above 10th standard.

**Exclusion criteria**
1. Chronic leg and foot ulcer patient suffering with any other serious co existing illness.
2. Patient those who are uncooperative.
3. Patient those who are unconscious, drowsy and disoriented at the time of study.
4. Diagnosed with chronic alcoholism and alcohol dependant syndrome.

**Data collection procedure**
Data were collected from the participant by using sociodemographic proforma; Chronic wound impact schedule, Kessler’s psychological distress scale and Beck depression inventory. The researcher recruited the participant based on the predetermined sampling criteria. Three instruments were translated into Kannada and Malayalam version and language validation done. Reliability of the three instruments was fall on above 0.7 by split half method and found to be reliable in the translated version of Kannada and Malayalam. Pre test was conducted to before the administration of the intervention. Bibliotherapy was administered for one week in the intervention along with usual care.

**Scientific adequacy of the research**
The study strictly followed the privacy, confidentiality of the ethical clearance procedure. This study conducted by the researcher as a part of PhD program.
Tables with caption separately

Table 1- Independent t test analysis between the interventional and control group

<table>
<thead>
<tr>
<th>Baseline data</th>
<th>Interventional Group(10)</th>
<th>Control Group(10)</th>
<th>N=20 Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Quality of life</td>
<td>56.2</td>
<td>56.3</td>
<td>6</td>
</tr>
<tr>
<td>Psychological Distress</td>
<td>28.3</td>
<td>6.3</td>
<td>27.1</td>
</tr>
<tr>
<td>Depression</td>
<td>22.5</td>
<td>7.2</td>
<td>22</td>
</tr>
</tbody>
</table>

S, S* , S** - significant (P< 0.05, 0.01, 0.001) NS- Non Significant df =18

Table 2 : shows Mean, SD, Mean difference on quality of life among the Interventional and control group patients. N=20

<table>
<thead>
<tr>
<th>Data collection Point</th>
<th>Interventional</th>
<th>Control</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Post test</td>
<td>65.21</td>
<td>9.3</td>
<td>53.06</td>
</tr>
<tr>
<td>I follow up</td>
<td>67.8</td>
<td>9.18</td>
<td>54.64</td>
</tr>
<tr>
<td>II follow up</td>
<td>70.74</td>
<td>7.8</td>
<td>52.24</td>
</tr>
</tbody>
</table>

Table 3 : shows the Mean, SD and mean difference on the psychological distress in the Interventional and control group patients. N=20

<table>
<thead>
<tr>
<th>Data collection Point</th>
<th>Interventional</th>
<th>Control</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Post test</td>
<td>20.6</td>
<td>5.91</td>
<td>28.1</td>
</tr>
<tr>
<td>I follow up</td>
<td>17.1</td>
<td>3.38</td>
<td>26</td>
</tr>
<tr>
<td>II follow up</td>
<td>16.8</td>
<td>4.63</td>
<td>23.6</td>
</tr>
</tbody>
</table>

Table 4 : shows the Mean, SD and mean difference of the Depression in the Interventional and control group patients. N=20

<table>
<thead>
<tr>
<th>Data collection Point</th>
<th>Interventional</th>
<th>Control</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Post test</td>
<td>17.2</td>
<td>7.036</td>
<td>21.4</td>
</tr>
<tr>
<td>follow up</td>
<td>14.4</td>
<td>6.132</td>
<td>20.3</td>
</tr>
<tr>
<td>I follow up</td>
<td>13.1</td>
<td>5.486</td>
<td>18.1</td>
</tr>
</tbody>
</table>

Table 5. Two way analysis of variance on quality of life, Distress and depression between the group and within group. N=20

<table>
<thead>
<tr>
<th>Variables</th>
<th>F value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of life</td>
<td>20.3</td>
<td>0.00 S**</td>
</tr>
<tr>
<td>Distress</td>
<td>25.2</td>
<td>0.00 S</td>
</tr>
<tr>
<td>Depression</td>
<td>5.18</td>
<td>0.03 S</td>
</tr>
</tbody>
</table>

S, S*, S** - significant (P< 0.05, 0.01, 0.001) NS- Non Significant df =18

Results:

Results presented as follows

Table 1 reveals baseline mean of quality of life is 56.3 SD 6 in the interventional group and 66.2 SD 7.7 in control group .Distress mean is 28.3 SD 6.3 in the interventional group and 27.1 SD 3 in the control group. Depression mean is 22.5 SD 7.2 in the interventional group and 22 and 4.5 in the control group Independent t test value obtained were 0.15 P>0.05, 0.5 P>0.05, 0.18 P>0.05 for quality of life, psychological distress and depression respectively. It shows that there is no significant difference between baseline values of quality of life distress and depression between the Interventional and control group.

Table 2 shows that in the Interventional group, mean of quality of life was 56.3, 65.2, 67.8 and 70.4 in the pretest, posttest, I follow up and II follow up respectively. In the control group, mean of quality of life was 56.28, 53.06, 54.6 and 52.2 in the pretest, posttest, I follow up and II follow up respectively. Quality of life is significantly increased in the quality of life after the bibliotherapy in the interventional group than the control group.

Table 3 shows that , In the Interventional group, mean of psychological distress was 28.3,20.6,17.1 and 16.8 in the pretest, posttest, I follow up and II follow up respectively. In the control group, mean of psychological distress was 27.1, 28.1, 26 and 23.6 in the pretest, posttest, I follow up and II follow up respectively. Quality of life is significantly increased in the quality of life after the bibliotherapy in the Interventional group than the control group.

Table 4 shows that in the Interventional group, mean of depression was 22.5, 17.2, 14.4 and 13.1 in the pretest, posttest, I follow up and II follow up respectively. In the control group, mean of depression was 22,21.4,20.3 and 18.1 in the pretest, posttest, I follow up and II follow up respectively. After the bibliotherapy there is a significant decrease in the psychological distress in the interventional group than the control group.

Table 5 shows that , In the Interventional group, mean of depression was 22.5, 17.2, 14.4 and 13.1 in the pretest, posttest, I follow up and II follow up respectively. In the control group, mean of depression was 22,21.4,20.3 and 18.1 in the pretest, posttest, I follow up and II follow up respectively. After the bibliotherapy there is a significant decrease in depression in the interventional group in the I follow up and II follow up than the control group.
Table 5 shows the two way analysis (ANOVA) of variance of quality of life, psychological distress and depression in various points of time between the Interventional and control group. F value obtained between groups indicated that statistically, there is significant difference between the intervention and control group. Interventional group, quality of life is significantly increased than the control group. Psychological distress and Depression significantly decreased in the intervention group than the control group. Bibliotherapy was effective improving the quality of life and decreasing the distress and depression.

Discussion
Pilot trail findings were discussed in to two aspects

a) Baseline level of quality of life, distress and depression
Baseline level of quality of life, distress and depression implies that there is no significant difference in the level of quality of life, distress and depression in both interventional and control group (p>0.05). Findings show that there is mean of the quality of life (56.3), distress (28.3) and depression (22.5) were produced moderate impact among the patient suffering with chronic leg and foot ulcer.

Above findings was supported by the study conducted Jones JE, Robinson J, Barr W, Carlisle C in UK on Impact of exudates and odour from chronic venous leg ulceration.

b) Effectiveness of Bibliotherapy
Two way analysis of variance proves that bibliotherapy highly significant in increasing quality of life (F=20.3,P<0.001) decreasing the psychological distress (F=25.2,P<0.01) and decreasing depression (F=5.18 ,P<0.05).Comparatively psychological distress, quality of life were shows highly significant difference in the interventional group than the depression. Bibliotherapy to the mild and moderate depression is less effective in the course of administration than the psychological distress.

Effectiveness of bibliotherapy was supported by the study of Songprakun W and McCann TV. On Evaluation of a bibliotherapy manual for reducing psychological distress in people with depression: a randomized controlled trial in Thailand.

Conclusion
Chronic leg and foot ulcers are disabling and constitute a significant burden on clients and the health-care system and it have a negative psychological impact on clients and families. Bibliotherapy is helps the patient to cope with the illness, reduce the psychological impact. Pilot trail proves that bibliotherapy is significantly effective in improving the quality of life and reducing distress and depression in chronic leg and foot ulcer. Pilot trail gave root to conduct main study for the researcher.

Acknowledgement:
Our heartfelt thanks to the ethical and research committee of the Nitte university and K.S Hedge medical college hospital. Our special thanks to the valuators of the book, Translators and Language valuators of the Instruments

References:
3. Dr Prabakhar clinical study of the ulcer of the leg 2006 dissertation submitted to RGUHS.
6. Dr Ganesh Kumar, Physical illness may affect mental health.TNN, Oct 11, 2010, 05.35am IST.www.google.com
FINGERPRINT PATTERN CHARACTERISTICS OF INTELLECTUALLY DISABLED CHILDREN - AN ORIGINAL STUDY

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Charly Chacko Joseph[^1]

Post Graduates[^1,2], Professor & HOD[^3], Assistant Professor[^4], Department of Anatomy, Yenepoya Medical College, Mangalore, Department of Anaesthesia, Mahatma Gandhi Medical College and Research Institute, Pondicherry, India.

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Abstract:
Fingerprint patterns are unique patterns made by friction ridges and furrows present on the pads of finger tips. Uniqueness and persistence are the two underlying features of fingerprint patterns. Aim of this present study was to determine the differences in the incidence of fingerprint patterns in intellectually disabled children compared to normal healthy children. Intellectual disability is a generalized disorder appearing before adulthood and is characterized by limitations in both intellectual functioning and in adaptive behavior. The present study comprising of 120 students (60 intellectually disabled and 60 controls) was carried out in Pediatrics outpatient department, Yenepoya Medical College and Hospital, Mangalore. The incidence of the four fingerprint patterns (Ulnar loop, Radial loop, Whorls and Arches) were determined in both the groups. Ulnar loop pattern had the highest incidence in both the groups and the least incidence was shown by arch pattern. There exists difference in the frequency of the fingerprint patterns in males and females of both the groups. The study was conducted to observe for any difference in the incidence of fingerprint patterns between intellectually disabled and normal children.

Keywords: Fingerprint, Intellectually disabled, Loop, Dermatoglyphics

Introduction:
Fingerprint patterns are impressions made by the minute ridge formations or furrows present on the fingertips. The dermal ridges are formed during 3rd month of intrauterine life. The fingerprint patterns are genetically determined and the pattern once formed doesn’t alter with developmental or environmental changes. Human fingerprints are unique and they offer an infallible means of personal identification.[^1,2]

Intellectual disability, also known as mental retardation is characterized by below average intellectual functioning level and significant limitations in daily living skills.[^3] Symptoms may appear at birth or in early childhood. Common signs and symptoms include developmental delay, difficulties with problem solving skills and in learning social rules. Mostly, it persists throughout adulthood. The causes for intellectual disability include genetic factors, prenatal maternal infections, childhood illnesses, injuries and environmental factors such as malnutrition.[^4]

Fingerprint patterns are of multifactorial polygenic inheritance. Many chromosomal disorders have characteristic dermatoglyphic patterns which may aid in the diagnosis of those disorders. In this study, the dermatoglyphic patterns of the intellectually disabled children were compared with the controls. An attempt has been made to study whether there exist any difference in the incidence of the fingerprint patterns in both the groups.

Materials and Methods
This prospective study was done among subjects who had visited the Pediatrics outpatient department of Yenepoya Medical College and Hospital. The study included a total of
120 subjects (60 intellectually disabled and 60 controls) in the age group of 8-14 years. Each group consisted of 30 males and 30 females. The subjects were requested to wash their hands with soap and water and dry it using a clean hand towel. The ink pad used was of Faber Castell Company of size 110mm * 69 mm. A white sheet of paper was provided which had 10 different blocks for all fingers of both the hands. The subject was asked to press his/her fingertips on the stamp pad and thereafter to the white paper to transfer the fingerprint impression. Specific number was given to each digit. Right thumb was marked as 1 and number 10 was given to left little finger. Other details such as age and sex of each subject were noted. Subjects with any hand deformity or permanent scars on the fingertips were excluded from the study.

**Results:**
The study was carried out in 120 children of age group 8-14 years of which 60 subjects were intellectually disabled and 60 were controls. 30 males and 30 females were present in each group.

**Table 1:** Distribution of fingerprint patterns in intellectually disabled and controls

<table>
<thead>
<tr>
<th>Fingerprint Patterns</th>
<th>Intellectually Disabled</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Ulnar loop</td>
<td>324</td>
<td>54%</td>
</tr>
<tr>
<td>Radial loop</td>
<td>47</td>
<td>7.8%</td>
</tr>
<tr>
<td>Whorls</td>
<td>205</td>
<td>34.2%</td>
</tr>
<tr>
<td>Archs</td>
<td>24</td>
<td>4%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>600</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1 shows distribution of fingerprint patterns in intellectually disabled and controls. Ulnar loop pattern shows the highest incidence in both the groups followed by whorls. Arches show the least frequency in intellectually disabled and radial loop pattern is found to be the least among controls.

**Table 2:** Distribution of fingerprint patterns according to gender in intellectually disabled and controls

<table>
<thead>
<tr>
<th>Fingerprint Patterns</th>
<th>Intellectually Disabled</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Ulnar loops</td>
<td>162</td>
<td>54%</td>
</tr>
<tr>
<td>Radial loops</td>
<td>18</td>
<td>6%</td>
</tr>
<tr>
<td>Whorls</td>
<td>114</td>
<td>38%</td>
</tr>
<tr>
<td>Archs</td>
<td>06</td>
<td>2%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>300</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2 shows the distribution of fingerprint patterns according to gender in intellectually disabled and control groups. Ulnar loop shows the highest frequency in males and females of both the groups followed by whorls. Arches show the least frequency in males of both the groups and also in females of intellectually disabled group.

**Table 3:** Side wise distribution of fingerprint patterns in males and females of intellectually disabled subjects and controls

<table>
<thead>
<tr>
<th>SEX</th>
<th>SIDE</th>
<th>ULNAR LOOPS</th>
<th>WHORLS</th>
<th>ARCHES</th>
<th>RADIAL LOOPS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Intellectually disabled</td>
<td>MALE</td>
<td>84</td>
<td>56%</td>
<td>53</td>
<td>35.3%</td>
</tr>
<tr>
<td></td>
<td>LEFT</td>
<td>78</td>
<td>52%</td>
<td>61</td>
<td>40.7%</td>
</tr>
<tr>
<td></td>
<td>FEMALE</td>
<td>85</td>
<td>56.7%</td>
<td>47</td>
<td>31.3%</td>
</tr>
<tr>
<td></td>
<td>LEFT</td>
<td>77</td>
<td>51.3%</td>
<td>44</td>
<td>29.3%</td>
</tr>
<tr>
<td>Controls</td>
<td>MALE</td>
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<td>60.7%</td>
<td>47</td>
<td>31.3%</td>
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<tr>
<td></td>
<td>LEFT</td>
<td>93</td>
<td>62%</td>
<td>39</td>
<td>26%</td>
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<tr>
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<td>FEMALE</td>
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<td>100</td>
<td>66.7%</td>
<td>37</td>
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</tbody>
</table>

Table 3 shows sidewise distribution of fingerprint patterns in males and females of intellectually disabled subjects and controls. Ulnar loops followed by whorls showed the highest predominance on both sides in males and females of both the groups.
Discussion:
Dermatoglyphics is the scientific study of fingerprints. The term 'dermatoglyphics' was coined from the Greek word 'derma' which means 'skin' and the term 'glyphic' which means carving'. Fingerprint patterns are easily deposited on suitable surfaces by sweat secretions from the eccrine glands present in the friction ridges of finger tips. Less variation is seen in fingerprint patterns among subjects with genetic syndromes than between control subjects. Dermatoglyphics is an emerging field which acts as a non invasive and early predictor of mental retardation in children. The study of dermatoglyphics is a simple, yet complicated tool to diagnose the chromosomal abnormalities.

In the present study, the incidence of fingerprint patterns in intellectually disabled was compared with control subjects. The study was done sex wise and side wise. The four fingerprint patterns taken into consideration were ulnar loop, radial loop, whorls and arches. Ulnar loop had the highest incidence in both the groups followed by whorls. Arch pattern was seen the least in intellectually disabled whereas radial loops and arches were seen the least frequency among controls. In sex wise distribution of fingerprint patterns among intellectually disabled, ulnar loop pattern showed equal frequency in both the sexes, whorls were seen more in males compared to females whereas radial loops and arches were seen more in females. In sidewise distribution of patterns among mentally retarded, right side showed higher frequency of ulnar loops among males and females.

A study was conducted in 2013 by Dr. Bhagwat V B on palmar dermatoglyphics in mentally retarded children which also showed the predominance of ulnar loop pattern. According to Dr. Bhagwat V B, among mentally retarded children, the percentage of ulnar loop was higher in males compared to females. Whereas in the present study, both males and females shared equal frequencies of ulnar loops, whorls were seen more in males and radial loops and arches were seen more in females.

Conclusion:
Dermatoglyphics, as a non invasive approach can definitely aid in the early detection of mental retardation in children. Since the dermatoglyphic patterns are established by birth, it can be considered as a diagnostic tool in identifying various genetic abnormalities in children. Therefore dermatoglyphics can be considered as an inexpensive and noninvasive screening method in certain genetic disorders.

Acknowledgement:
Authors sincerely thank all the participants of this study and also Dr. Bhagya B Sharma, Lecturer, Department of Anatomy, Yenepoya Medical College, Mangalore, for her kind co-operation and help during this study.

References:
A MORPHOLOGICAL STUDY OF PLACENTA IN CHILDREN WITH AND WITHOUT HYPOSPADIAS

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Abstract:

Introduction: Hypospadias can be defined as an abnormal urethral orifice under surface of the penis with or without chordee and with or without dorsal hood. At a critical time in sexual differentiation of the male fetus, HCG enters fetal plasma from syncytiotrophoblast; acts as an LH surrogate and stimulate replication of testicular Leydig cells and testosterone synthesis to promote male sexual differentiation. The placental insufficiency may disrupt the supply of nutrients and hCG to the fetus leading to growth retardation and hypospadias.

Aim: The aim of this study was to observe and document morphological changes of placenta in children with hypospadias and compare with controls.

Materials & Methods: The present study was a case control study from July 2008 to July 2011. The data base of the labor registries of the hospital indicated that there were total 3243 male births during this period. All examined for presence/absence of hypospadias by attending pediatrician. Hypospadias was detected in 17 male newborns. Control cases comprised of 68 male newborns without hypospadias of similar gestational age and birth weight collected by cluster sampling.

Result:
Total number of male birth during the study period was 3243, in that 17 children born with hypospadias. The incidence of hypospadias in our hospital was 0.52%. Gestational age, Birth weight, Placental weight, Placental thickness, Placental volume, volume of infarcts, F.P Ratio, Cord length, were similar in children with hypospadias when compared with controls. CONCLUSION: Fetal factors like gestational age, birth weight, placental weight, Feto-placental ratio were not significantly associated with hypospadias. This study shows no role of placenta in the etiology of hypospadias in children with normal birth weight.

Keywords: Hypospadias, Feto-placental ratio, Placenta.

Introduction:

Hypospadias, in boys, defined as an association of three anomalies of the penis: (1) an abnormal ventral opening of the urethral meatus that may be located anywhere from the ventral aspect of the glans penis to the perineum, (2) an abnormal ventral curvature of the penis (chordee), and (3) an abnormal distribution of foreskin with a “hood” present dorsally and deficient foreskin ventrally.1

Hypospadias is typically diagnosed at new born physical examination. This is not always the case for boys with milder forms of hypospadias or a non-retractile prepuce or for those with the megameatus intact prepuce (MIP) variant.2,3,4 These boys may escape diagnosis until the foreskin is fully retracted or circumcision is performed. Although uncommon, simple apparently isolated hypospadias may be the only visible indication of a significant underlying abnormality. The only treatment for this condition is surgery. Thus prevention is imperative. To accomplish this, it is necessary to determine the etiology of hypospadias. The association of growth retardation and hypospadias is well established. Fetal testosterone secretion is under the influence of placental hCG during first 14 weeks of gestation. Chorionic gonadotropin stimulates fetal testicular testosterone secretion that is maximum at approximately the same time that maximal level of HCG is attained. Thus, at a critical time in sexual
differentiation of the male fetus, HCG enters fetal plasma from syncytiotrophoblast; acts as an LH surrogate and stimulate replication of testicular Leydig cells and testosterone synthesis to promote male sexual differentiation.

The placental insufficiency may disrupt the supply of nutrients and HCG to the fetus leading to growth retardation and hypospadias. To validate this hypothesis, we analyzed all the male infants born at our hospital with hypospadias for fetal growth parameters, and collected placentae for detailed evaluation. And assessed maternal risk factors associated with hypospadias by questionnaire proforma.

Materials & methods:
The present study was a case control study from July 2008 to July 2011. The database of the labour registries indicated that there were total 3243 male births during this period. All examined for presence/absence of hypospadias by attending pediatrician. Hypospadias was detected in 17 male newborns. Control cases comprised of 68 male newborns without hypospadias of similar gestational age and birth weight collected by cluster sampling.

Once hypospadias was identified, the neonate was examined in detail to identify other anomalies, weight at birth, and gestational age. The placenta was collected and examined for placental weight, thickness, placental volume and cord information. Fetus to placental weight ratio was measured as a reference for placental function and intrauterine fetal growth. The placenta of these controls was also subjected to detailed evaluation and examination.

Data was compiled and analyzed by descriptive analysis; comparison of risk factors was done using student t test. P value <0.05 was considered as significant.

Result:
Total number of male birth during the study period was 3243, in that 17 children born with hypospadias. The incidence of hypospadias in our hospital was 0.52%. The characteristics of child at birth are considered as fetal demographic factors associated with hypospadias (Table 1).

**Characteristics of child at birth**—Gestational age, Birth weight, Placental weight, Placental thickness, Placental volume, volume of infarcts, F.P Ratio, Cord length, were similar in children with hypospadias when compared with controls (Table 1). Gestational age was similar in hypospadias (38.64±0.99 weeks) when compared with controls (38.37±1.14 weeks). Birth weight in children with hypospadias was (2.96±0.19 kg), when compared with controls (3.01±0.17 kg). There was no significant difference in placental weight in children with hypospadias (462.31±8.56 gm) when compared with controls (461.92±8.04 gm). Placental thickness was similar in children with hypospadias (2.08±0.27 cm) when compared with controls (2.00±0.00 cm). There was no significant difference in placental volume in children with hypospadias (362.65±14.14 cc) when compared with controls (364.22±17.17 cc). Feto-placental ratio was not higher in children with hypospadias (6.53±0.40) when compared to controls (6.74±0.42). There was no significant difference in length of umbilical cord in children with hypospadias vs controls (58.31±2.52 vs 56.85±2.91, P=0.18). Number of blood vessels in the umbilical cord were normal in children with hypospadias.

Gestational age was similar in hypospadias (38.64±0.99 weeks) when compared with controls (38.37±1.14 weeks). Birth weight in children with hypospadias was (2.96±0.19 kg), when compared with controls (3.01±0.17 kg). There was no significant difference in placental weight in children with hypospadias (462.31±8.56 gm) when compared with controls (461.92±8.04 gm). Placental thickness was similar in children with hypospadias (2.08±0.27 cm) when compared with controls (2.00±0.00 cm). There was no significant difference in placental volume in children with hypospadias (362.65±14.14 cc) when compared with controls (364.22±17.17 cc). Percentage of infarct in the total volume of placenta was similar in both the groups (3.45±0.23 vs 3.48±0.30, P=0.81). Feto-placental ratio was not higher in children with hypospadias (6.53±0.40) when compared to controls (6.74±0.42). There was no significant difference in length of umbilical cord in children with
hypospadias vs controls (58.31±2.52 vs 56.85±2.91 (P=0.18). Number of blood vessels in the umbilical cord was normal in children with hypospadias.

### Table 1: Comparison of fetal demographic factors associated with hypospadias

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Hypospadias (n=17)</th>
<th>Controls (n=68)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational age(week)</td>
<td>38.64±0.99</td>
<td>38.37±1.14</td>
<td>0.96</td>
</tr>
<tr>
<td>Birth weight(kg)</td>
<td>2.96±0.19</td>
<td>3.01±0.17</td>
<td>0.11</td>
</tr>
<tr>
<td>Placental weight(gm)</td>
<td>462.31±8.56</td>
<td>461.92±8.04</td>
<td>0.90</td>
</tr>
<tr>
<td>Placental thickness(cm)</td>
<td>2.08±0.27</td>
<td>2.00±0.00</td>
<td>0.32</td>
</tr>
<tr>
<td>Placental volume(cc)</td>
<td>362.65±14.14</td>
<td>364.22±17.77</td>
<td>0.78</td>
</tr>
<tr>
<td>Feto-placental ratio</td>
<td>6.53±0.40</td>
<td>6.74±0.42</td>
<td>0.16</td>
</tr>
<tr>
<td>Cord length(cm)</td>
<td>58.31±2.52</td>
<td>56.85±2.91</td>
<td>0.18</td>
</tr>
</tbody>
</table>

P-value <0.05 is considered as significant

### Discussion:

Many authors have suggested that disturbance of placental function early in pregnancy is the key mechanism underlying both preterm birth/low birth weight and the improper closure of the urethra, because the placenta is the main producer of pregnancy hormones in early pregnancy and is thus instrumental in the differentiation and development of the fetal organs. This study could not find an association between hypospadias risk and preterm birth (< 37 weeks gestation) and/or being small for gestational age (< 10th percentile) because in this study all the children born with hypospadias were normal birth weight (>2.8 kg) and all of them were term birth (>39 weeks). It is well known that in normal, preterm and term infants there is a direct relation between birth weight and placental weight and placenta's thickness, because none of the children in the study group were low birth weight. The ratio of placental weight to birth weight is described as a marker of fetal growth. The correlation of birth weight and placental size is to be expected as both placental weight and size are known to increase as birth weight increases. In this study the feto-placental ratio in hypospadias children was not found to be increased in comparison with the controls.

### Conclusion:

Several studies have found reduced placental function as underlying etiology for low birth weight and hypospadias. In the present study all the children born with hypospadias were of normal birth weight. Fetal factors like gestational age, birth weight, placental weight, Feto-placental ratio were not significantly associated with hypospadias. This study shows no role of placenta in the etiology of hypospadias in normal birth weight children.

### Acknowledgement:

I thank Dr. R.B. Nerli, Professor & HOD of Urology, KLE Hospital, KLE University, Belgaum, for his valuable advice and guidance to complete this study.

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**References:**

8. Aschim EL, Haugen TB, Tretli S, Daltveit AK, Grotmol T. Risk factors for
A STUDY ON OCCURRENCE OF SELECTED RISK FACTORS OF PREGNANCY AMONG ANTENATAL WOMEN WITH A VIEW TO DEVELOP AN INFORMATION BOOKLET

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Abstract:
The descriptive study was conducted to determine the occurrence of selected risk factors of pregnancy among antenatal women. Structured interview schedule was used to assess the risk factors of pregnancy among antenatal women. 150 samples were selected by purposive sampling technique. The study findings revealed that increased maternal age, short stature, increased blood pressure, abortion, decreased hemoglobin and GDM were the most prevalent risk factors in the study sample. There was significant association between gravid state and abortion (cal=26.78, p<0.05), gravid state and age (cal=9.79, p<0.05), education and hemoglobin level (cal=6.02, p<0.05) at 0.05 level of significance.

Keywords: risk factors, antenatal women, information booklet

Introduction:
Pregnancy is a unique, exciting and often joyous time in a woman’s life, as it highlights the woman’s amazing creative and nurturing powers while providing a bridge to the future. However, a pregnant woman needs to be a responsible woman so as to best support the health of her future child, as the growing fetus depends entirely on its mother’s healthy body for all needs. Pregnancy is a natural physiological process but there are certain high risk factors that may come across and complicate the pregnancy and childbirth and often pregnant women are not aware of the seriousness of these problems.

According to WHO, worldwide maternal mortality ratio is estimated to be 400 per 1, 00,000 live births. Identification of the risk factors together with appropriate and timely interventions during the perinatal period can prevent morbidity and mortality among mothers and infants to a great extent. For health professionals, maternal mortality is not statistics, not rates or ratios but it is women whose faces are seen in the throes of agony, distress and despair, and this is not simply because these women die in the prime of their lives, at a time of great expectation and joy or not because maternal death is one of the most terrible ways to die, be it bleeding to death, the convulsions of toxemia of pregnancy, the unbearable pangs of obstructed labour or the agony of puerperal sepsis. It is because in almost each and every case, it is a 5 event that could have been prevented. So the investigator feels that nurses are responsible and accountable for early identification of risk factors and also imparting health education to gravid mothers for prevention of this enduring epidemic.

Objectives of the Study
• To determine the occurrence of selected risk factors of
pregnancy among antenatal women.

- To develop an information booklet on selected risk factors of pregnancy
- To find the association of selected risk factors of pregnancy among
- antenatal women with selected demographic variables

Materials and Methods:
The study adopted a survey approach with a descriptive design and was conducted in Justice K.S Hegde Charitable Hospital Mangalore from 16/8/11 to 25/9/11. For the study 150 antenatal women were selected through purposive sampling technique. An informed consent was taken from all subjects and data were collected by structured interview schedule on selected risk factors of pregnancy. The selected risk factors were categorised into biophysical factors, psychosocial factors and environmental factors. Biophysical factors includes age, height, various medical disorders and obstetrical factors. Psychosocial factors includes history of psychiatric disorders, smoking or alcohol, access to health care facilities, support from family or spouse. Environmental factors includes exposure to radiation, pesticides or industrial pollutants. The data was analysed using descriptive and inferential statistics.

Results:
Major findings are discussed under the following headings

Section 1: Description of sample characteristics

<table>
<thead>
<tr>
<th>SL. NO</th>
<th>DEMOGRAPHIC VARIABLE</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
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<tbody>
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<tr>
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<td>18-23 yrs</td>
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<td>26.7</td>
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<tr>
<td>b</td>
<td>24-29 yrs</td>
<td>76</td>
<td>50.6</td>
</tr>
<tr>
<td>c</td>
<td>30-35 yrs</td>
<td>28</td>
<td>18.7</td>
</tr>
<tr>
<td>d</td>
<td>36-41 yrs</td>
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<td>4</td>
</tr>
<tr>
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<td>Educational status</td>
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<tr>
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<td>b</td>
<td>Primary education(1-7)</td>
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<td>c</td>
<td>High school(8-10)</td>
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<td>d</td>
<td>PUC</td>
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<td>e</td>
<td>Graduate level and above</td>
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<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Religion</td>
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</tr>
<tr>
<td>a</td>
<td>Hindu</td>
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<tr>
<td>b</td>
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</tr>
<tr>
<td>c</td>
<td>Christian</td>
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<td>Average monthly income</td>
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<td>&gt;10000/-</td>
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<td>6</td>
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<tr>
<td>B</td>
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<td>7</td>
<td>Gravida</td>
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</tr>
<tr>
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<td>Primigravida</td>
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<td>48</td>
</tr>
<tr>
<td>B</td>
<td>Multigravida</td>
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<td>C</td>
<td>Grandmultipara</td>
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<td>8</td>
<td>Mode of delivery</td>
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<td>Vaginal delivery</td>
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<td>9</td>
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<tr>
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<tr>
<td>C</td>
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<td>54.7</td>
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Section 2: Occurrence of selected risk factors of pregnancy

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<tr>
<th>RISK STATUS</th>
<th>RISK FACTORS</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
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<td>2. 30-35 yrs</td>
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<td>18.7</td>
</tr>
<tr>
<td></td>
<td>3. &lt;19 or &gt;35 yrs</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Height</td>
<td></td>
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<tr>
<td>No Risk</td>
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<td>At Risk</td>
<td>2. 145-150 cm</td>
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<td>13.3</td>
</tr>
<tr>
<td></td>
<td>3. &lt;145 cm</td>
<td>4</td>
<td>2.7</td>
</tr>
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</table>
### Present pregnancy gestation

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
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<tr>
<td>No Risk</td>
<td>1. Single</td>
<td>146</td>
<td>96.7</td>
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<tr>
<td>At Risk</td>
<td>2. Twins</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>3. Triplets and above</td>
<td>0</td>
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### Pulmonary disease

<table>
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<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No history of pulmonary disease</td>
<td>143</td>
<td>95.4</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. Previous history of pulmonary disease but treated</td>
<td>5</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>3. Present history of pulmonary disease and on treatment</td>
<td>2</td>
<td>1.4</td>
</tr>
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</table>

### Cardiac disease

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No history of cardiac disease</td>
<td>146</td>
<td>97.3</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. Cardiac disease present and treated</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3. Cardiac disease present and not treated</td>
<td>1</td>
<td>0.7</td>
</tr>
</tbody>
</table>

### Blood pressure

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. 120/80 mm of Hg</td>
<td>131</td>
<td>87.3</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. &gt;120/80 but&lt; 140/90 mm of Hg</td>
<td>9</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>3. &gt;140/90 mm of Hg</td>
<td>10</td>
<td>6.7</td>
</tr>
</tbody>
</table>

### Family history of blood pressure

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No family history of hypertension or pregnancy induced hypertension</td>
<td>110</td>
<td>73.3</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. Family history of hypertension</td>
<td>35</td>
<td>23.3</td>
</tr>
<tr>
<td></td>
<td>3. Family history of pregnancy induced hypertension</td>
<td>5</td>
<td>3.4</td>
</tr>
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</table>

### Random blood sugar level

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. 80-119 mg/dl</td>
<td>130</td>
<td>86.7</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. 120-200 mg/dl</td>
<td>17</td>
<td>11.3</td>
</tr>
<tr>
<td></td>
<td>3. &gt;200 mg/dl</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

### Diabetes

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No history of diabetes</td>
<td>137</td>
<td>91.3</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. Diabetes under control</td>
<td>11</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>3. Diabetes not under control</td>
<td>2</td>
<td>1.3</td>
</tr>
</tbody>
</table>

### Family history of diabetes mellitus or previous overweight baby

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No family history of diabetes mellitus or previous overweight baby</td>
<td>127</td>
<td>84.7</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. Family history of diabetes mellitus</td>
<td>20</td>
<td>13.3</td>
</tr>
<tr>
<td></td>
<td>3. Both family history of diabetes mellitus and overweight baby</td>
<td>3</td>
<td>2</td>
</tr>
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### Renal disease

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No history of any renal disease</td>
<td>145</td>
<td>96.7</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. Previous history of renal disease but treated</td>
<td>5</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>3. Present history of renal disease and on treatment</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
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### Fibroids

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No history of uterine fibroids</td>
<td>144</td>
<td>96</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. History of asymptomatic fibroids</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>3. History of symptomatic fibroids</td>
<td>2</td>
<td>1.3</td>
</tr>
</tbody>
</table>

### Hemoglobin concentration

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. &gt;10 gm/dl</td>
<td>129</td>
<td>86</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. 7-10gm/dl</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>3. &lt;7 gm/dl</td>
<td>3</td>
<td>2</td>
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</table>

### Abortions

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No abortions</td>
<td>120</td>
<td>80</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. 1-2 abortions</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>3. &gt;2 abortions</td>
<td>3</td>
<td>2</td>
</tr>
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### Vaginal bleeding

<table>
<thead>
<tr>
<th>Risk Status</th>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Risk</td>
<td>1. No vaginal bleeding</td>
<td>142</td>
<td>94.7</td>
</tr>
<tr>
<td>At Risk</td>
<td>2. Mild bleeding but controlled</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>3. Severe bleeding treated with blood transfusion</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>RISK STATUS</td>
<td>RISK FACTORS</td>
<td>FREQUENCY</td>
<td>PERCENTAGE</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Infectious disease</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. No history of any infectious disease</td>
<td>148</td>
<td>98.7</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Previous History of infectious disease and treated</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>3. Present history of infectious disease on treatment</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Seizures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. No history of seizures</td>
<td>146</td>
<td>97.3</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Seizures but controlled</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>3. Seizures but not controlled</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Hypothyroidism or hyperthyroidism</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. No history of hypothyroidism or hyperthyroidism</td>
<td>146</td>
<td>97.3</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Hypothyroidism or hyperthyroidism but under control</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>3. Not under control</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pregnancy related complications or inherited disorders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. No family history of inherited disorders or pregnancy related complications</td>
<td>143</td>
<td>95.3</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Family history of inherited disorders or pregnancy related complications</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>3. Family history of both inherited disorders and pregnancy related complications</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Antenatal visit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. Regular antenatal visit</td>
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</tr>
<tr>
<td>At risk</td>
<td>2. Minimum one antenatal visit per trimester</td>
<td>7</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>3. No antenatal visit</td>
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<td>0</td>
</tr>
<tr>
<td><strong>PSYCHOSOCIAL FACTORS</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Psychiatric disorders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. No history of psychiatric disorders</td>
<td>145</td>
<td>96.7</td>
</tr>
<tr>
<td>At risk</td>
<td>2. History of psychiatric disorders but treated</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>3. History of psychiatric disorders but not treated</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Smoking or alcohol</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. No smoking or alcohol</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Smoking or alcohol</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>3. Smoking and alcohol</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Access to health care facilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. Adequate access to health care facilities(within 1 km)</td>
<td>140</td>
<td>96.3</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Limited access to health care facilities (less than or equal to 5km)</td>
<td>7</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>3. Very limited access to health care facilities (more than 5 km)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td><strong>Family support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. Good family support</td>
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<td>96.7</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Support from spouse or family only</td>
<td>5</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>3. No support from family and spouse</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL FACTORS</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Radiation or pesticides</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. No exposure to radiation or pesticides</td>
<td>146</td>
<td>97.3</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Exposure to radiation or pesticides</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>3. Exposure to radiation and pesticides</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Industrial pollutants</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk</td>
<td>1. No exposure to any industrial pollutants</td>
<td>147</td>
<td>98</td>
</tr>
<tr>
<td>At risk</td>
<td>2. Limited Exposure to industrial pollutants</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3. Exposure to industrial pollutants</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Discussion:**

The study findings revealed that increased maternal age, short stature, increased blood pressure, abortion, decreased hemoglobin and GDM were the most prevalent risk factors in the study sample. Considering increased maternal age as a risk factor similar findings were reported in a retrospective study conducted in four tertiary care hospitals at USA between 2000 and 2005. The study identified seventy-nine cases among 126,500 births and revealed that thirty seven (46.8%) had obstetric
complications during pregnancy; the most frequent complications were gestational diabetes (12.7%) and preeclampsia (10.1%)\textsuperscript{2}. The finding of short stature as a risk is congruent with a population-based study performed in Israel during 2000–2004.\textsuperscript{3} The study revealed that of 159,210 deliveries occurred, 5822 (3.65%) were of patients with short stature. Patients with short stature had statistically significant higher rates of CS compared with patient’s \( \geq 155 \text{cm} \) (21.3% versus 11.9%). Higher rates of intrauterine growth restriction (3.2% versus 1.9%), premature rupture of membranes (7.1% versus 5.6%), labor dystocia (6.1% versus 3.5%), mal-presentations (7.6% versus 6.1%), and cephalopelvic disproportion (0.9% versus 0.3%)\textsuperscript{3} was also found\textsuperscript{3}.

**Conclusion:**

The goal of maternity care is healthy pregnancy with a physically safe and emotionally satisfying outcome for mother, infant and family. The study findings revealed that women are at risk for the pregnancy. Although health information alone is insufficient to change behaviors, it may contribute to more informed decisions which necessitates the health professionals to be responsible to educate the women regarding the risk factors of pregnancy thus to attain the goal of maternity care.

**References:**

PAIN, ANXIETY & FUNCTIONAL STATUS OF PATIENTS WITH LOWER LIMB FRACTURE AND DISLOCATION AFTER OPEN REDUCTION

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Principal & Professor, Department of Medical Surgical Nursing, Nitte Usha Institute of Nursing Sciences, Nitte University, Mangalore - 575 018, Karnataka, India.
E-mail : ftds_1970@rediffmail.com

Abstract : A descriptive-co relational study was conducted to assess severity of pain, level of anxiety and functional status of patients with lower limb fracture and dislocation after open reduction from 17th September to 3rd Nov 2012. Purposive sampling technique was used to select the subjects for the study. Data was collected by using demographic proforma, Numerical Pain Rating Scale, Beck’s Anxiety Inventory and Functional status rating scale. The findings of the study showed that out of sixty samples, majority were males 49(82%). Majority of the subjects 53(88%) were married. Nature of job revealed that 21 (35%) were laborers. 27 (45%) of the subjects had monthly income between 5001-8000 rupees. 32 (53.3%) had no habits of smoking, alcoholism or tobacco chewing. The findings of the study revealed that on the first post-operative day the mean value of pain (8.70), anxiety (22.85) and functional status scores (49.20) was greater than the pain (1.70), anxiety (11.90) and functional status scores (3.453) of the tenth post-operative day. A significant association was found between functional status and age (p=0.043, 0.05 level of significance). No significant correlation was found between severity of pain, level of anxiety and functional status of these patients.

Keywords : Pain, anxiety, functional status, lower limb fracture.

Introduction : Bones form the skeleton of the body and allow the body to be supported against gravity and to move and function in the world. Bone is not a stagnant organ. It is the body’s reservoir of calcium and is always undergoing change under the influence of hormones. Parathyroid hormone increases blood calcium levels by leeching calcium from bone, while calcitonin has the opposite effect, allowing bone to accept calcium from the blood.¹

A bone fracture is a medical condition in which there is a break in the continuity of the bone. A bone fracture can be the result of a direct blow, repeated blows, a twisting force, disease that affects the strength of the bone, high force impact or stress, or trivial injury as a result of certain medical conditions that weaken the bones, such as osteoporosis, bone cancer, or osteogenesis imperfecta, where the fracture is then properly termed as a pathologic fracture. The main causes of fracture are traumatic or pathological. 80% of patients admitted in the orthopedic ward have injuries due to trauma. Most of these are due to RTA, others are due to domestic or work related injuries. India accounts for as high as 6 per cent of the world’s RTAs, although it has 1 per cent of the world’s vehicles.²

Fractures of the lower limb are common. They are often associated with considerable morbidity and a lengthy hospital stay. People with lower limb injuries may have difficulty, if working involves prolonged standing or walking, squatting, crouching, lifting heavy objects or work that involves weight bearing and twisting through the lower limbs.³

Patients with any orthopedic conditions often require
more prolonged treatment than any other patients. Fixation in bed with inability to leave the bed for any purpose makes them rely on others even for their basic needs. Problems of musculoskeletal system have significant impact on persons, their family, society and also the country because it decreases the productivity of the individual. Research suggests there is a high prevalence of anxiety and depression amongst patients with chronic musculoskeletal pain, which can influence the effectiveness of rehabilitation programs. It is therefore important for clinicians including nurses involved in musculoskeletal rehabilitation programs to consider screening patients for elevated levels of anxiety and depression. Keeping this in mind the investigator was interested to assess the level of pain, anxiety and functional status of patient with lower limb fracture after open and closed reduction.

Materials and Methods:
Descriptive co relational research design was adopted in this study. Population comprised of patients with lower limb fracture and dislocation after open reduction admitted in the orthopedic wards of selected hospitals. Purposive sampling technique was used for the selection of 60 samples. Severity of pain was assessed by Numerical Pain Rating Scale; Level of anxiety by Beck’s anxiety inventory (BAI) and Functional status by a rating scale. The reliability of the tools was assessed using Cronbachs alpha and it was found to be 0.75 for Becks anxiety inventory and 0.81 for the Functional status rating scale. The Numerical Pain Rating Scale was scored as follows: 1-3——mild pain 4-6——moderate pain 7-10——Severe pain

Becks Anxiety Inventory had 21 items and was scored as 0, 1, 2 and 3. Higher scores depicted severe anxiety. The Functional status rating scale had 15 items and the levels of disability were scored as follows: 0-15——No disability 16-30——Mild 31-45——Moderate 46-60——Severe

The data collection period extended from 17.09.2012 to 03.11.2012. Formal written permission was obtained from Hospital authority prior to data collection. An informed consent was taken from the patients admitted in orthopedic wards. Data was collected at two point of time i.e. on the first post-operative day and the tenth post-operative day using the same assessment tools.

Results:
Major findings of the study are discussed and presented below:

Section 1: Part A - Description of sample characteristics

Table-1: Percentage distribution of subjects based on demographic characteristics

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (in years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>31-40</td>
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<td>35</td>
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<td>41-50</td>
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<td>35</td>
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<tr>
<td>51-60</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>49</td>
<td>82</td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>53</td>
<td>88</td>
</tr>
<tr>
<td>Unmarried</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Widow / Widower</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Nature of job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government employee</td>
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<td>10</td>
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<tr>
<td>Agriculture</td>
<td>18</td>
<td>30</td>
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<tr>
<td>Laborers</td>
<td>21</td>
<td>35</td>
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<tr>
<td>House hold worker</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Others.....</td>
<td>6</td>
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</tr>
<tr>
<td>Monthly Income (in rupees)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5000</td>
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<td>17</td>
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<tr>
<td>5001-8000</td>
<td>27</td>
<td>45</td>
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<tr>
<td>8001-11000</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>&gt;11000</td>
<td>11</td>
<td>18</td>
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<tr>
<td>Recreational activities (in hospital)</td>
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<tr>
<td>Watching TV</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Reading books</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Listening music</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Talking with neighbor patients</td>
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<td>45</td>
</tr>
<tr>
<td>More than one option</td>
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<td>15</td>
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<tr>
<td>Habits</td>
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</tr>
<tr>
<td>Smoking</td>
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<td>22</td>
</tr>
<tr>
<td>Alcoholism</td>
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<tr>
<td>Tobacco chewing</td>
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<td>2</td>
</tr>
<tr>
<td>No habits mentioned above</td>
<td>32</td>
<td>53</td>
</tr>
<tr>
<td>More than one habits</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>
Section 1: Part B - Clinical proforma on fracture assessment

Table - 2: Percentage distribution of samples based on fracture assessment

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of fracture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road traffic accident</td>
<td>48</td>
<td>81</td>
</tr>
<tr>
<td>Fall</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Extremity Involved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right lower limb</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>Left lower limb</td>
<td>43</td>
<td>78</td>
</tr>
<tr>
<td>Bone involved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patella</td>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td>Tibia</td>
<td>39</td>
<td>65</td>
</tr>
<tr>
<td>Calcaneum</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>

Section 2: Level of pain, anxiety and functional status assessed by using mean and standard deviation

Table: 3 Mean and standard deviation of pain, anxiety and functional status of patients with lower limb fracture or dislocation after open reduction

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>FIRST POST OPERATIVE DAY</th>
<th>TENTH POST OPERATIVE DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± S.D</td>
<td>Mean ± S.D</td>
</tr>
<tr>
<td>Pain</td>
<td>8.70 ± 0.70</td>
<td>1.70 ±1.14</td>
</tr>
<tr>
<td>Anxiety</td>
<td>22.85 ± 4.52</td>
<td>11.90 ± 29.10</td>
</tr>
<tr>
<td>Functional status</td>
<td>49.20 ± 4.57</td>
<td>3.45 ± 5.02</td>
</tr>
</tbody>
</table>

Section 3: Association between severity of pain, level of anxiety and functional status of patients with selected demographic variables.

The study shows that the calculated p value of Fisher’s exact test for functional status and the variable age (p=0.043) is lesser than the p value at p< 0.05, hence the research hypothesis was accepted and it is concluded that there is a significant association between functional status and age.

Section 4: Relationship between severity of pain, level of anxiety and functional status of patients with open reduction

No significant correlation was found between pain, level of anxiety and functional status of patients with lower limb fracture and dislocation. (p>.05 level of significance)

Discussion:

Section 1: Part a - Description of sample characteristics

Majority 42 (70%) were within the age group of 31-50 years and were males 49(82%). Similar findings were reported in a study conducted in Switzerland to assess the psychological distress and quality of life after orthopedic trauma. The study revealed that majority were men (59%) and the mean age was found to be 44.55. Contrary to the study few reviews have revealed higher incidence of lower limb fracture among females.7,8

Part B - Clinical proforma on fracture assessment

Majority 48 (81%) of fracture were due to Road Traffic Accident. Similar findings were reported in a study conducted in Baltimore, U.S. to assess patient-oriented functional outcome after unilateral lower extremity fracture. The study revealed that 73% of the fractures were due to road traffic accident.9

Section 2: Severity of pain, Level of anxiety and Functional status of patients with open reduction.

On the first post-operative day the mean score of pain (8.70±0.70), anxiety (22.85± 4.52), and functional status of fracture patients was comparatively greater than the mean scores of the tenth post-operative day for pain, anxiety and functional status respectively. (1.70±1.14, 11.90± 29.10, 3.45± 5.02). Similar findings were reported in a study to determine the comparison of pain and its treatment in advanced dementia and cognitively intact patients with hip fracture. The study revealed that 40% of patients were having severe pain preoperatively which continued even in the post-operative period.10 Few studies have highlighted the intense severity of pain experienced by patients with lower limb fracture and recommended the need for early pain management through psychological or pharmacological intervention.11,12

In the present study 52(87%) of the patients with lower limb fracture had moderate anxiety. Several studies have reported the prevalence of anxiety and depression among patients with lower limb fracture. A study conducted in Jordan to assess the prevalence of anxiety and depression after lower limb fracture among 56 patients revealed the presence of anxiety and depressive symptoms in 37% and 20%, respectively.13 The above findings suggest that health...
professionals need to implement interventions to decrease post-traumatic stress disorder, depression and anxiety to increase the quality of life following lower limb injuries.

The present study findings revealed 45(75%) of the subjects had severe functional disability on the first post-operative day. On the 10th post-operative day none had severe disability but only 20(33%) had moderate disability. The findings are supported by another prospective study conducted on 367 patients with hip fracture revealed (44%) had developed some functional dependency most commonly to bathing (42%) and dressing (21%).

Section 5: Association between severity of pain, level of anxiety and functional status of patients with open reduction with selected demographic variables.

The present study revealed that on the first post-operative day there was a significant association between functional status and age (p=0.043) at 0.05 level of significance. The above findings indicated that age has an influence on functional status.

Section 6: Relationship between severity of pain, level of anxiety and functional status of patients with open reduction.

The study findings revealed that there is no relation between severity of pain, level of anxiety and functional status of patients with open reduction. Contrary to the present study a study conducted in Taiwan revealed a positive correlation between post-traumatic stress disorder and depression (r=0.70, P<0.001) and between post-traumatic stress disorder and anxiety (r=0.57, P<0.001), and a negative correlation between post-traumatic stress disorder and quality of life (r=-0.47, P<0.001).

Conclusion:

The study calls for strengthening supportive and educative care for reducing pain and anxiety and thus improving the functional status of patients with lower limb fracture. Better management makes a difference in the lives of those in need and will be a fulfilling role for many nurses as a care giver.

References:

Keywords: Pain, anxiety, functional status, lower limb fracture.

- Fatima D'silva


STRESS AND BURNOUT ASSESSMENT AMONG POST GRADUATE DENTAL STUDENTS

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Abstract:
Context: High levels of stress and burnout affect the academic, and clinical learning process and long term health of the individual.

Aims: The aim of the study was to assess stress and burnout among post graduate dental students in a dental college in India

Settings and Design: 82 post graduate dental students enrolled in the MDS programme in a dental school in India completed the Graduate Dental Environment Stress (GDES) questionnaire and Maslach Burnout Inventory. Burnout was assessed in three domains Emotional Exhaution, Depersonalization and Personal Accomplishment

Statistical analysis used: Summary statistics (proportions, mean and standard deviation) were used to summarize the responses to the Graduate Dental Environment Stress (GDES) questionnaire and Maslach Burnout Inventory

Results: The statistical analysis revealed that the mean overall score on GDES 30 stress questionnaire was 2.28. Top three stressors among the Postgraduate students was lack of leisure time, examinations and assessments, and insecurity regarding professional future. Females had significantly higher stress rates. 21% of respondents were “cases of burnout” in the Emotional Exhaustion (EE) component, 29% were “burnout” cases of Depersonalization (DP) while 54% were “burnout” cases in the Personal Accomplishment (PA) domain

Conclusions: Moderate to high levels of stress and burnout were detected among this study sample. There is a need to come up with effective strategies in the postgraduate curriculum to tackle stress and burnout.

Keywords: Stress, burnout, dental postgraduates, education

Key Message: Postgraduate dental program is a specialized course which can be quite challenging physically and mentally. Stress and burnout are detrimental to the learning process. So it is important to identify the domains of maximum stress and burnout and come up with efficient strategies to tackle it.

Introduction:
Dental education is a highly demanding and challenging course placing heavy demands on the mental resources of students making them vulnerable to high levels of stress. Stress describes external demands (physical and mental) on an individual’s physical and psychological well-being. Some dose of stress is beneficial and acts as a driving force for improved performance, but the persistence of long term stress can be debilitating.

Studies have shown that in comparison to the general population, dental students have been reported to experience increased levels of anxiety and depression at times approaching levels seen in general medical patients judged psychiatrically ill. A study conducted comparing chronic stress between medical and dental students concluded that chronic stress was more pronounced among dental students.

Post graduate training in dental science is a complex educational experience. The residents of all specialties are expected to train clinically, complete research assignments and participate in teaching programme. Apart from this, long working hours, additional strain of financial issues,
family obligations and future employment uncertainty add to substantial stress circumstances. As many studies show that stress and anxiety are predictors of academic and clinical performance it becomes all the more important to assess the stress levels.  

This study aimed to evaluate the mental health of postgraduate students in a dental college in India specifically with respect to stress and burnout. This adds to the knowledge base from the findings from similar studies in other countries - Switzerland, United Kingdom, Spain and Greece. We are not aware of any similar studies among postgraduate dental students in the Indian population.

**Subjects and Methods:**

All postgraduate dental students enrolled in the MDS program of a dental college in India in the year 2011-2013 comprised the target population and were requested to participate in the study (n = 126). The study sample included residents in six departments: Conservative dentistry and Endodontics, Orthodontics, Oral and Maxillofacial surgery, Pedodontics, Periodontics, Prosthodontics, Oral medicine and radiology and Oral pathology. The MDS program is a 36 month programme which when successfully completed leads to a Masters degree in Dental Surgery (MDS) specific to each department. Stress and burnout were separately evaluated. To measure perceived stress, a modified version of the Graduate Dental Environment Stress (GDES30) scale was used. The participants were administered a questionnaire in English language. Postgraduate students were invited to complete the questionnaires with pen or pencil and completion required approximately 20 minutes. The questionnaire was anonymous and participation was voluntary.

The questionnaire basically consisted of 30 statements pertaining to various sources of stress perceived by the dental postgraduates on a daily basis. The statements were to be rated on a 4 point likert scale as 1: "not stressful at all", 2: "somewhat stressful", 3 "quite stressful", 4: "very stressful". To quantify burnout the 22-item Maslach Burnout Inventory (MBI) (Maslach et al., 1996) was employed, as used in previous investigations to measure burnout. This questionnaire is a modification of the list of stressor items listed by Garbee and colleagues in 1980. The three dimensions of burnout that were measured by this 22 point scale were Emotional Exhaustion (EE; nine items), Depersonalization (DP; five items) and Personal Accomplishment (PA; eight items). Participants were asked to rank these items on a seven-point Likert scale where 0 means “never”, 1: "a few times a year", 2: "monthly", 3: "a few times a month", 4: "weekly", 5: "a few times a week" and 6 : "everyday". The subscale score thresholds that were recommended by the MBI manual were used to identify individuals who met the criteria of burnout "cases"– EE: > 26, DP: > 12, and PA: < 32. 13

Summary statistics (proportions, mean and standard deviation) were used to summarize the responses to the thirty stress items, as well as the participants' demographic information. Subsequently, overall mean GDES30 and MBI subscale scores were computed. Cronbach's alpha was computed for the GDES as a measure of its internal consistency, proportions of burnout “cases” were calculated among the entire sample of residents and stratified according to year of study (first, second, and third), age and gender.

**Results:**

Out of the 126 postgraduates contacted, 82 completed the stress survey questionnaire and 72 completed the burnout questionnaire. The Cronbach's alpha was 0.876 for the stress questionnaire. The mean overall score was GDES30 was 2.28(SD=0.09), the vast majority of answers were in range between 2 (somewhat stressful) and 3 (quite stressful). Distribution of individual responses to the thirty statements, as well as mean scores and ranking of the stress factors are given in Table II. Top three stressors overall among the Postgraduate...
students was examinations and assessments, lack of time for leisure activities, and insecurity regarding professional future. Meeting research requirements, financial issues and amount of assigned reading material were the next three factors for stress. There was no significant difference in the perceived stress among the three years. However, multiple linear regression analysis indicated that stress due to fear of failure while treating complex cases, and difficulty of communication with patients was maximum in the first year postgraduates and decreased with subsequent years. Overall females had slightly higher stress rates than males which was significantly higher in terms of response to stress induced by amount of assigned readings, difficulty of assigned readings, examinations/assessments, learning clinical/surgical techniques, and lack of leave and holiday days allowed. The mean score of perceived stress was higher in the younger age group (2.31 vs 2.23). With regard to burnout, 21% of respondents were "cases of burnout" in the emotional exhaustion component, Table III the proportion was higher for depersonalization (29%) while personal accomplishment was lowest with 54% of the postgraduates "cases of burnout" with inadequate sense of personal accomplishment. There was however no significant difference in burnout cases among the three years of postgraduates.

Table I: Descriptive information of the 82 dental postgraduate students

<table>
<thead>
<tr>
<th>Demographics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>41 (50%)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>41 (50%)</td>
</tr>
<tr>
<td>Age (Years, mean)</td>
<td>27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years of study</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>29 (35.36%)</td>
</tr>
<tr>
<td>Second</td>
<td>27 (32.9%)</td>
</tr>
<tr>
<td>Third</td>
<td>26 (31.7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative dentistry</td>
<td>20 (24.39%)</td>
</tr>
<tr>
<td>Maxillofacial surgery</td>
<td>6 (7.31%)</td>
</tr>
<tr>
<td>Periodontics</td>
<td>6 (7.31%)</td>
</tr>
<tr>
<td>Pedodontics</td>
<td>14 (17.07%)</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>8 (9.75%)</td>
</tr>
<tr>
<td>Prosthodontics</td>
<td>18 (21.95%)</td>
</tr>
<tr>
<td>Oral medicine radiology</td>
<td>6 (7.31%)</td>
</tr>
<tr>
<td>Oral pathology</td>
<td>4 (4.87%)</td>
</tr>
</tbody>
</table>

Table II: Distribution of responses to the thirty stressors of the Graduate Dental Environment Stress (GDES30) questionnaire, with mean scores and standard deviation and ranking of the items among the 82 postgraduate dental students

<table>
<thead>
<tr>
<th>Stress Items</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 Amount of assigned reading material</td>
<td>12</td>
<td>23</td>
<td>33</td>
<td>14</td>
<td>0</td>
<td>14</td>
<td>2.60</td>
<td>0.94</td>
<td>6</td>
</tr>
<tr>
<td>Q2 Difficulty of understanding course reading material</td>
<td>15</td>
<td>31</td>
<td>33</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>2.29</td>
<td>0.80</td>
<td>14</td>
</tr>
<tr>
<td>Q3 Competition for higher performance</td>
<td>26</td>
<td>21</td>
<td>22</td>
<td>11</td>
<td>2</td>
<td>12</td>
<td>2.17</td>
<td>1.09</td>
<td>20</td>
</tr>
<tr>
<td>Q4 Patients coming late/missing appointments</td>
<td>9</td>
<td>26</td>
<td>26</td>
<td>18</td>
<td>3</td>
<td>18</td>
<td>2.57</td>
<td>1.06</td>
<td>8</td>
</tr>
<tr>
<td>Q5 Examinations/assessment</td>
<td>14</td>
<td>19</td>
<td>20</td>
<td>29</td>
<td>0</td>
<td>29</td>
<td>2.78</td>
<td>1.11</td>
<td>1</td>
</tr>
<tr>
<td>Q6 Collaboration with Para medical staff (lab technician)</td>
<td>40</td>
<td>20</td>
<td>12</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>1.90</td>
<td>1.06</td>
<td>26</td>
</tr>
<tr>
<td>Q7 Learning laboratory techniques</td>
<td>23</td>
<td>26</td>
<td>24</td>
<td>9</td>
<td>0</td>
<td>9</td>
<td>2.23</td>
<td>0.98</td>
<td>18-19</td>
</tr>
<tr>
<td>Q8 Learning clinical/surgical techniques</td>
<td>32</td>
<td>21</td>
<td>21</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>1.91</td>
<td>1.02</td>
<td>25</td>
</tr>
<tr>
<td>Q9 Lack of adequate staff in the clinic</td>
<td>46</td>
<td>14</td>
<td>11</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>1.79</td>
<td>1.09</td>
<td>30</td>
</tr>
<tr>
<td>Q10 Lack of confidence to be a successful resident</td>
<td>41</td>
<td>21</td>
<td>7</td>
<td>11</td>
<td>2</td>
<td>12</td>
<td>1.80</td>
<td>1.09</td>
<td>29</td>
</tr>
<tr>
<td>Q11 Lack of confidence in meeting patient expectations</td>
<td>36</td>
<td>21</td>
<td>16</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>1.82</td>
<td>1.02</td>
<td>28</td>
</tr>
<tr>
<td>Q12 Meeting research requirements</td>
<td>10</td>
<td>25</td>
<td>32</td>
<td>15</td>
<td>0</td>
<td>15</td>
<td>2.63</td>
<td>0.92</td>
<td>4-5</td>
</tr>
<tr>
<td>Q13 Policies and regulations of the course</td>
<td>13</td>
<td>17</td>
<td>38</td>
<td>12</td>
<td>2</td>
<td>12</td>
<td>2.54</td>
<td>1.00</td>
<td>10</td>
</tr>
<tr>
<td>Q14 Obtaining adequate clinical experience</td>
<td>23</td>
<td>21</td>
<td>27</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>2.26</td>
<td>1.04</td>
<td>16</td>
</tr>
<tr>
<td>Q15 Completing graduation requirements</td>
<td>17</td>
<td>20</td>
<td>33</td>
<td>11</td>
<td>1</td>
<td>11</td>
<td>2.43</td>
<td>1.00</td>
<td>12</td>
</tr>
<tr>
<td>Q16 Lack of input in administrative issues of the program</td>
<td>30</td>
<td>18</td>
<td>19</td>
<td>13</td>
<td>2</td>
<td>2</td>
<td>2.13</td>
<td>1.15</td>
<td>21</td>
</tr>
<tr>
<td>Q17 Insecurity regarding professional future</td>
<td>9</td>
<td>27</td>
<td>30</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>2.64</td>
<td>0.92</td>
<td>3</td>
</tr>
<tr>
<td>Q18 Financial issues</td>
<td>18</td>
<td>19</td>
<td>16</td>
<td>28</td>
<td>1</td>
<td>28</td>
<td>2.63</td>
<td>1.20</td>
<td>4-5</td>
</tr>
<tr>
<td>Q19 Lack of time for leisure activities</td>
<td>17</td>
<td>11</td>
<td>22</td>
<td>30</td>
<td>2</td>
<td>30</td>
<td>2.74</td>
<td>1.22</td>
<td>2</td>
</tr>
<tr>
<td>Q20 Inconsistency of feedback between different instructors</td>
<td>20</td>
<td>25</td>
<td>23</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>2.32</td>
<td>1.05</td>
<td>13</td>
</tr>
<tr>
<td>Q21 Availability of faculty to work up cases</td>
<td>29</td>
<td>24</td>
<td>18</td>
<td>9</td>
<td>2</td>
<td>2</td>
<td>2.03</td>
<td>1.05</td>
<td>22</td>
</tr>
<tr>
<td>Q22 Difficulty in communication with patients</td>
<td>26</td>
<td>14</td>
<td>22</td>
<td>17</td>
<td>3</td>
<td>3</td>
<td>2.29</td>
<td>1.22</td>
<td>15</td>
</tr>
</tbody>
</table>
**Stress Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q23 Lack of leave and holidays</td>
<td>15</td>
<td>25</td>
<td>22</td>
<td>18</td>
<td>2</td>
<td>2.47</td>
<td>1.10</td>
<td>11</td>
</tr>
<tr>
<td>Q24 Fear of failure when treating complex cases</td>
<td>15</td>
<td>33</td>
<td>24</td>
<td>8</td>
<td>2</td>
<td>2.25</td>
<td>0.95</td>
<td>17</td>
</tr>
<tr>
<td>Q25 Neglect for personal cases</td>
<td>14</td>
<td>24</td>
<td>20</td>
<td>22</td>
<td>2</td>
<td>2.56</td>
<td>1.18</td>
<td>9</td>
</tr>
<tr>
<td>Q26 Awareness of own competences and limitations</td>
<td>19</td>
<td>28</td>
<td>28</td>
<td>6</td>
<td>1</td>
<td>2.23</td>
<td>0.93</td>
<td>18-19</td>
</tr>
<tr>
<td>Q27 Collaboration with part time faculty</td>
<td>32</td>
<td>26</td>
<td>15</td>
<td>7</td>
<td>2</td>
<td>1.91</td>
<td>1.00</td>
<td>24</td>
</tr>
<tr>
<td>Q28 Doing case presentations to patients</td>
<td>28</td>
<td>25</td>
<td>19</td>
<td>7</td>
<td>3</td>
<td>1.98</td>
<td>1.03</td>
<td>23</td>
</tr>
<tr>
<td>Q29 Doing presentations in seminar activities</td>
<td>16</td>
<td>19</td>
<td>22</td>
<td>23</td>
<td>2</td>
<td>2.58</td>
<td>1.16</td>
<td>7</td>
</tr>
<tr>
<td>Q30 Collaboration with other specialties</td>
<td>28</td>
<td>29</td>
<td>18</td>
<td>43</td>
<td>2</td>
<td>1.90</td>
<td>0.95</td>
<td>27</td>
</tr>
</tbody>
</table>

* Percent calculated among non-missing responses, where 1: not stressful at all, 2: somewhat stressful, 3: quite stressful, 4: very stressful
** Number of missing responses/ not aplicable
*** Items ranked from highest to lowest mean score

**Table III**: Distribution of perceived stress (GDES30 mean score and standard deviation [SD]) and burnout (MBI subscale mean scores and SD, and percent of "high" or "low scorers", or "cases") among the entire sample, and stratified by age, gender and year of study among 72 postgraduate students

<table>
<thead>
<tr>
<th>Perceived stress</th>
<th>Emotional exhaustion</th>
<th>% high</th>
<th>Depersonalization</th>
<th>% high</th>
<th>Personal</th>
<th>Personal % reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>2.28 (0.09)</td>
<td>17.88 (11.25)</td>
<td>21%</td>
<td>8.54 (8.67)</td>
<td>29%</td>
<td>29.37 (10.14)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;27</td>
<td>2.31 (0.10)</td>
<td>18.14 (11.11)</td>
<td>21%</td>
<td>9.31 (9.30)</td>
<td>31%</td>
<td>30.55 (10.73)</td>
</tr>
<tr>
<td>&gt;27</td>
<td>2.23 (0.11)</td>
<td>17.40 (11.71)</td>
<td>21%</td>
<td>7.08 (7.29)</td>
<td>25%</td>
<td>27.16 (8.69)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2.20 (0.11)</td>
<td>17.57 (11.34)</td>
<td>25%</td>
<td>9.8 (7.12)</td>
<td>31%</td>
<td>30.57 (6.45)</td>
</tr>
<tr>
<td>Female</td>
<td>2.36 (0.11)</td>
<td>18.18 (11.34)</td>
<td>13%</td>
<td>7.3 (3.42)</td>
<td>27%</td>
<td>28.54 (8.95)</td>
</tr>
<tr>
<td>Year of study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>2.31 (0.13)</td>
<td>18.61 (13.73)</td>
<td>25%</td>
<td>10.69 (10.31)</td>
<td>30%</td>
<td>29.30 (12.26)</td>
</tr>
<tr>
<td>Second</td>
<td>2.22 (0.12)</td>
<td>17.08 (8.38)</td>
<td>8%</td>
<td>6.86 (8.58)</td>
<td>30%</td>
<td>30.95 (8.29)</td>
</tr>
<tr>
<td>Third</td>
<td>2.30 (0.11)</td>
<td>17.86 (11.07)</td>
<td>27%</td>
<td>7.78 (6.35)</td>
<td>27%</td>
<td>27.86 (9.33)</td>
</tr>
</tbody>
</table>

* Proportions of burnout “cases” were calculated using the thresholds used in the Maslach Burnout Inventory – high emotional exhaustion score: > 26
** High depersonalization score: > 12
*** Reduced personal accomplishment score: < 32

**Discussion**

The study found moderate to high levels of stress and burnout faced by post graduates students in their three years of training. The overall stress score being 2.28 was higher among this study group of dental postgraduates when compared to a similar study on Greek dental residents (2.1) 7

"Examinations and assessment" "lack of time for leisure activities" and "insecurity regarding professional future" were top stressors among the study group. This is not surprising considering the meticulous and strict nature of the course. The stress of examination and assessment can be attributed to the competitive nature of the course, and the fear of failing the course requirement. Previous findings of similar studies rank "lack of leisure time" and "completing graduation requirements" the highest stressors. 14,15,16 Our data did not reveal stress and burnout to be linked to the study year, unlike studies conducted in European dental residents. 17,17 This could be explained on two grounds. First, the timing of the survey corresponded to almost ten months from the beginning of the academic year. Hence, the students in the first year would have had significant exposure to the professional environment and its attendant mental demands including facing the taxing clinical workload. There is a possibility that although the course burden increases with the year, the coping skills may also be improve with time. This could also be the reason that burnout is consistently higher in the lower age group (< 26years). There is also the limitation of limited sample size. In any case, it must be acknowledged that the typically small size of all studies in the field, limits their
between-subgroups inferential potential. Increased stress of communication with patients among first year postgraduates can be justified, because India has a multi-linguistic population. The setting of the study is a dental college situated at the border of two states with the population speaking various dialects. Gender has been considered to be an important factor in influencing the extent of psychological symptoms. The female students in our study had a higher level of stress relative to their male counterparts. There is higher female stress in many studies conducted among dental and medical professionals. This could be attributed to socio-cultural differences, different psychological attributes related to coping skills and vulnerability to life events.

Our study revealed high levels of burnout among the postgraduates with more than 54% of the postgraduates feeling low Personal Accomplishment and 29% feeling burnout with Depersonalization, and 21% Emotionally Exhausted. This burnout is much higher than burnout values obtained from postgraduates in European dental schools. The current study set up is a dental college offering completely free dental care to all the patients irrespective of the dental care required. This is similar to most government dental hospitals where patient dental care is almost always free or at minimal cost. Such a scenario leads to an immense case load which is handled by the postgraduate dental students. A disproportion between the numbers of patients to the post graduate students can lead to quicker burnout, and more stress.

Limitations of the study
The limitations of our study are limitations inherent in the methodology i.e. a chance of misinterpretation of questions and lack of response could not be controlled. The cross-sectional approach to interpretation of stress across three years, the difference in the number of postgraduates from different subjects participating in the study are limiting factors to an accurate assessment.

Conclusion:
Our study reveals high levels of stress and burnout among post graduate dental students, which must not be overlooked. There is a need to come up with an effective strategy in the postgraduate curriculum to tackle stress and burnout. Regulating bodies for dental education should take initiatives to provide financial security and future job prospects for the students, policies to update the examination systems and make it relatively less stressful should be looked into. Addressing issues that may arise in the educational setting will help improve the academic environment and lead to superior professional training.

Reference:
Keywords: Stress, burnout, dental postgraduates, education

- Dhanya Narasimhan


ATTITUDE OF COLLEGE STUDENTS TOWARDS ALCOHOL CONSUMPTION IN MANGALORE

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Abstract:
Introduction: According to various studies conducted, the response of the adolescent towards alcohol is different. Attitudes ranged from acceptance that is to “easy to get” and is “just going to happen,” to personal responsibilities, it’s your choice not to drink peer pressure; you end up drinking to be part of group”.

Objectives: To assess the attitude of youngsters towards alcohol consumption.

Materials and methods: A survey was performed in colleges under NITTE University. Students present at the time of visit were covered. A questionnaire was prepared comprising of a set of 14 questions covering the 3 main objectives of the survey.

Results: As per our survey of the 1150 students, 26.4% (304) students consume alcohol. Of these who consume alcohol, 188 (61.84%) students felt it was safe to drink. Also a majority of 219 students (72.03%) did not want to stop their drinking habits and 225 (74.01%) students haven’t tried quitting. Surprisingly, a good 1050 (91.30%) out of 1150 students responded that they were aware of the harmful effects of alcohol consumption.

Conclusion: We have concluded that the students are well informed and they know the ill effects of alcohol consumption even though, most of them consider it as a part of life style.

Keywords: Attitude, alcohol consumption, youngsters, harmful effects

Introduction:
According to various studies conducted the response of the adolescent towards alcohol is different. Attitudes ranged from acceptance that is to “easy to get” and is “just going to happen,” to personal responsibilities, it’s your choice not to drink peer pressure; you end up drinking to be part of group”.

Generally they spoke of alcohol as a fact of life and part of growing up. It is glamorized and made to “look exciting” and “cool” in advertising and is ubiquitous at social events. More than half of the students around 56.7% expect that alcohol will relax them. 54.5% think that they will be more open and friendly. 46.7% think that they will target problems if they drink. Many youngsters gave 3 most common reasons provided for why they started drinking were: - That friends did it and look like fun, A desire to experiment and see what it was like, Following the examples of family members and relatives.

Many youngsters consume alcohol on a trial and error basis. Early teens and junior high were characterized as they have experimented on drinking. They consume alcohol from friends and peer who would often buy alcohol for them.

The studies have also shown that exposure to alcohol advertising effects, youth’s attitudes about alcohols role in society.
Among elementary school children, exposure to beer commercials is related to beliefs about beer drinking and expectation to drink as adult. Most adolescents respond positively to television advertisements for alcohol and do not think the advertisements are boring. Many like adds that, Spotlight attractive model, Make drinking look like fun Are in attractive, exotic settings, Make the product look good, Are humorous.

The effect of religion on the attitude of youth towards alcohol is also seen. It showed that students with no religious affiliation reported significantly high level of drinking frequency and quantity than those who are. Regular attendance at religious services is linked to healthy, stable family life and well behaved children.

Very few youngsters also showed following attitude towards alcohol. Alcohol influences traffic and results in road accidents, family problem and relationship violence and crime, health and financial problems. Nearly half of them think that youth can be diverted to sports and leisure activities. They also think that they need more health information.

Many think of joining various programmes against alcohol in youth.

Objectives:
To assess the attitude of youngsters towards alcohol consumption.

Material and Methods:
A survey was performed in colleges under NITTE University. Students present at the time of visit were covered. A questionnaire was prepared comprising of a set of 14 questions covering the 3 main objectives of the survey. The students were asked to fill the questionnaire irrespective of their gender or whether they consume alcohol or not. The sample size used was 1150 students and the sampling method used is universal sampling. The responses were calculated & tabulated. Also statistical analysis was done using proportions to know the prevalence, gender comparison, effects & attitude with regard to alcohol consumption.

Operational definitions:
1. ABUSE: It is called abuse when the consumer fails to fulfill role obligations at work, school or home. Physically hazardous situations to the consumers. They might have legal problems. Continued use alcohol despite serious social and interpersonal problems.
2. DEPENDENCE: Consumers have tolerance, withdrawal symptoms, persistent desire to cut down drinking. Great amount of time of consumers is spent with activity related to alcohol. Social, occupational or recreational activities are given up by dependents. Continued use despite of knowledge of serious social, psychological and physical problems.
3. Social Drinkers: This type of consumers drink slowly, know when to stop, does not drink to get drunk, never drives after drinking, they respect non-drinkers also knows and obeys laws related to drinking.
4. Binge Drinking: Consumption of five or more drinks at a single sitting for a man and four drinks at a single sitting for a woman.
5. Ever user: The respondent, who accepts having taken one or more mentioned substances ever in life.
6. Regular user: The respondent, who accepts having used one or more mentioned substances during past one year and has been taking it at least once a week or several times in the previous month.

Result:
As per our survey of the 1150 students, 26.4% (304) students consume alcohol. Of these who consume alcohol, 188 (61.84%) students felt it was safe to drink. Also a majority of 219 students (72.03%) did not want to stop their drinking habits and 225 (74.01%) students haven’t tried quitting. Out of 304 students, only 82 (26.97%) students agreed to drive after drinking. Surprisingly, a good 1050 (91.30%) out of 1150 students responded that they were aware of the harmful effects of alcohol consumption. Around 13 (1.13%) students did not respond to the question.(Table-1)
When asked about their attitude towards alcohol consumption, out of the 1150 students, most of the students believed that alcohol is a ‘part of the lifestyle’ (895 students; 294.4%) followed by ‘social evil’ (586 students; 192.7%) and a ‘party element’ (491 students; 161.5%). Also 242 students (79.6%) believed that alcohol is used for pleasure and 241 students (79.27%) felt that it is a stress buster. A minority of just 211 students (69.4%) felt that alcohol is used as an emotional companion. (Fig-1)

Table-1 Showing the attitude of college students about alcohol consumption

<table>
<thead>
<tr>
<th>ATTITUDE TOWARDS ALCOHOL CONSUMPTION</th>
<th>YES</th>
<th>NO</th>
<th>NO RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive after drinking</td>
<td>82(26.97%)</td>
<td>218(71.7%)</td>
<td>4(1.3%)</td>
</tr>
<tr>
<td>Considers safe to drink</td>
<td>188(61.84%)</td>
<td>116(38.1%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Wants to stop drinking</td>
<td>83(27.3%)</td>
<td>219(72.03%)</td>
<td>2(0.65%)</td>
</tr>
<tr>
<td>Tried quitting</td>
<td>74(24.34%)</td>
<td>225(74.01%)</td>
<td>5(1.64%)</td>
</tr>
<tr>
<td>Aware of harmful effects</td>
<td>1050(91.30%)</td>
<td>87(7.56%)</td>
<td>13(1.13%)</td>
</tr>
</tbody>
</table>

Figure -1 Showing attitude of youngsters towards alcohol consumption

Discussion:
More than quarter of those consuming alcohol admit that they drive after drinking and most of them are involved in RTAs or other legal issues. Study conducted by V Kulkarni et al. Provides similar results of drunken driving among undergraduate students. Vast majority of people consuming alcohol believe that it is a safe practice. More than quarter of this group states that they want to stop drinking and most of them have tried quitting. More than 90% of the total population studies are well aware of the harmful effects of alcohol. A small proportion of those who consume alcohol are also aware of their ill effects. The level of awareness among developed nations, according to their studies, is higher than that of our population. Studies have shown that students who see their friends drinking on various public portals also get influenced into drinking and smoking. Hence portals like face book and orkut are also becoming a new recent for the increasing alcohol trends in youngsters. It proves itself to be an indirect form of peer pressure where the students indulge themselves in alcohol habits.

Conclusion:
After assessing the result we can conclude that the students are well informed and they know the ill effects of alcohol consumption even though, most of them consider it as a part of life style.

Acknowledgments:
We sincerely thank the management of all colleges under NITTE University to grant us permission to carry out this survey. We thank Dr. Uday Kiran, Head of Department, Community Medicine, KSHEMA and his staff for their indispensable support.

Keywords: Attitude, alcohol consumption, youngsters, harmful effects - Rashmi Kundapur

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5. J Forensic Leg Med 2013 may
COMPARATIVE STUDY OF SUPERDISINTEGRANTS USING ANTIEMETIC DRUG AS A MODEL

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¹²³Assistant Professors, ²Professor & HOD, Department of Pharmaceutics, Nitte Gulabhi Shetty Memorial Institute of Pharmaceutical Sciences, Nitte University, Paneer, Mangalore, Karnataka, India.

Abstract:
In the present investigation comparison of three different superdisintegrants was carried out by formulating orally disintegrating tablets. Promethazine HCl was used as model drug which is an antiemetic drug. Sodium starch glycolate, croscarmellose and crospovidone were selected as superdisintegrants and each one was used in three different concentrations (2%, 3.5% and 5%). The drug-polymer compatibility was ruled out by FTIR studies. A total of nine formulations (PF1-PF9) were made by direct compression. All prepared formulations were evaluated for weight variation, hardness, friability, drug content, disintegration time, wetting time and in vitro drug release parameters. The results of the evaluation parameters for all the nine formulations of promethazine HCl were within the standard limits. The in vitro drug release for promethazine HCl tablets of all the formulations (PF1-PF9) was carried out using phosphate buffer pH 6.8 as dissolution medium. Among all the formulations the tablets formulated with crospovidone (PF7-PF9) have shown 91.43 - 98.43% (maximum) drug release at the end of 10 min than sodium starch glycolate and croscarmellose, hence from the present work, it concluded that among three superdisintegrants crospovidone is the ideal superdisintegrant for formulating oral disintegrating tablets for promethazine HCl.

Keywords: Superdisintegrants, promethazine HCl, sodium starch glycolate, croscarmellose, crospovidone

Introduction:
The tablet is the most widely used dosage form because of its convenience in terms of self administration, compactness and ease in manufacturing. However, geriatric and pediatric patients experience difficulty in swallowing conventional tablets, which leads to poor patient compliance. To overcome this problem, scientists have developed innovative drug delivery systems known as Orally Disintegrating Tablets (ODT). These are novel types of tablets that disintegrate/disperse/dissolve in saliva.

In order to formulate ODT we need special agents called as superdisintegrants. A disintegrant is a substance in a tablet formulation that enables the tablet to break up into smaller fragments upon contact with gastrointestinal fluids. Superdisintegrants are used at a low level in the solid dosage form, typically 1–10% by weight relative to the total weight of the dosage unit. Examples of some superdisintegrants are croscarmellose, crospovidone and sodium starch glycolate.

Microcrystalline cellulose and low substituted hydroxypropylcellulose were used as disintegrating agents in the range of 8:2 – 9:1 to prepare fast dissolving tablet. Agar powder is used as disintegrant for the development of rapidly disintegration tablets by enhancing the porosity of agar by water treatment. Sodium starch glycolate, crospovidone and croscarmellose are some of the popular superdisintegrants. Superdisintegrants can act by 4 mechanisms namely swelling, wicking, repulsive force and deformation.

Ideal properties of superdisintegrants
Good Compressibility and Flow Properties
If the powders have 12-16% compressibility, they are said to have good flow powders. Crospovidones are significantly more compressible than other superdisintegrants.
Poor Solubility
The solubility of the major component in a tablet formulation can affect both the rate and the mechanism of tablet disintegration. Water soluble materials tend to dissolve rather than disintegrate, while insoluble materials generally produce rapidly disintegrating tablets.

Poor Gel Formation Capacity
Gels can delay dissolution as the drug must first diffuse through the gel layer before being released into the body. Sodium starch glycolate is used as superdisintegrant in tablet formulation at a concentration of 4-6%.

Good Hydration Capacity
Drugs or other excipients, which are hydrophobic and could be adsorbed on disintegrant surfaces, advertently influence the extent of hydration and the effectiveness of these disintegrants. Addition of fast disintegrants of high hydration capacity is reported to minimize this problem, and therefore, enhance dissolution.

Complexation
Anionic disintegrants like croscarmellose sodium and sodium starch glycolate may complex with cationic drug actives and slow dissolution. Crospovidone a non-ionic polymer does not interact with cationic drug actives to retard drug release. The effects of superdisintegrants like croscarmellose sodium, sodium starch glycolate and polyplasdone XL on the dissolution behavior of several cationic drugs with varying water solubility reports that polyplasdone XL had a more rapid dissolution rate for the model cationic drugs, irrespective of their aqueous solubilities.

Materials and Methods
Promethazine HCl was obtained as gift sample from Mayer Healthcare Pharmaceuticals, Bangalore. Microcrystalline cellulose was obtained from SD fine chemicals. Sodium starch glycolate, croscarmellose and crospovidone were obtained from Shreeji chemicals, Mumbai. Talc, magnesium stearate was obtained from SD fine chemicals. Aspartame, raspberry flavor were obtained from SD fine chemicals.

Methods
In the present investigation direct compression method was employed for the formulation of orally disintegrating tablets of promethazine HCl with three different superdisintegrants in different concentrations (2%, 3.5% & 5%) for their comparative study. promethazine HCl tablets are available in 25 mg and 50 mg doses in the market. Dose of 25 mg is selected for the present study. Microcrystalline cellulose was used as diluent, talc was used as glidant, magnesium stearate as lubricant, aspartame was used as sweetening agent and raspberry flavor was added to improve taste of tablets. The drug and the excipients were passed through #60-sieve. Weighed amount of drug and excipients except magnesium stearate were mixed in a mortar-pestle by geometric addition method for 20 min. The blend was then lubricated by further mixing with magnesium stearate. The mixture blend was subjected for drying to remove the moisture content at 40 to 45 °C, the mixture was blended with flavor and the powder blend was then compressed on 10 station rotary punching machine (Rimek RSB-4) using 8 mm round shaped punches. A total of nine formulations were prepared by direct compression method, which is shown in Table 1. The tablets of all the nine formulations were subjected for evaluation.

Evaluation of tablets
Thickness: The thickness of tablets was determined by using digital caliper (Coolant proof IP 65). The tablet is placed in between the two jaws of caliper scale and the reading was noted down. Three trials for each formulation were carried out.

Hardness: The tablet hardness, which is the force required to break a tablet was measured by using Pfizer hardness tester (S 14). Tablet is squeezed by two jaws. The first machines continually applied force with a spring and screw thread until the tablet started to break. When the tablet fractured, the hardness was read with a sliding scale. Three trials for each formulation were performed. The limit of hardness is 3-6 kg/cm².

Friability: Friability is the loss of weight of tablet in container/package due to removal of fine particles from
surface. This test is performed to ensure the ability of tablets to withstand shocks during processing, handling, transportation and shipment. The friability of tablets was determined using Roche friabilator (EF-2 USP). Ten tablets were initially weighed and transferred into the friabilator. The friabilator was operated at 25 rpm for four minutes. After four minutes the tablets were weighed again. The percentage friability of tablets was calculated using the following formula. The standard limit of friability is not more than 1 %.

\[
\% \text{ Friability} = \frac{\text{initial weight} - \text{final weight}}{\text{initial weight}} \times 100
\]

**Weight variation:** Twenty tablets were weighed individually and all together. Average weight was calculated from the total weight of all tablets. The individual weights were compared with the average weight. The percentage difference in the weight variation should be within the permissible limits (±7.5%). The percentage deviation can be calculated using following formula.

\[
\% \text{ deviation} = \frac{\text{individual weight} - \text{average weight}}{\text{Average weight}} \times 100
\]

**Drug content:** The drug content was estimated to know the percentage of drug present in the tablet. Twenty tablets were weighed and powdered. An amount of powder equivalent to 150 mg of promethazine HCl was dissolved in 100 ml of pH 6.8 phosphate buffer, filtered, diluted suitably and analyzed for drug content at 249.60 nm using UV-Visible spectrophotometer (Shimadzu UV-1700).

**In vitro drug release:** In vitro drug release of the samples was carried out using USP – type II dissolution apparatus (TDT 08L paddle type). The dissolution medium, 900 ml of phosphate buffer (pH 6.8) solution, was placed into the dissolution flask maintaining the temperature of 37±0.5 °C at 50 rpm. One tablet was placed in each flask of dissolution apparatus. The apparatus was allowed to run for 10 min. Samples measuring 5 ml were withdrawn at an interval of 2, 4, 6, 8 and 10 min. Samples were filtered through 10 µm filter. Same volume of the fresh dissolution medium was replaced every time. The collected samples were suitable diluted and analyzed at 249.60 nm by UV-Visible spectrophotometer (Shimadzu UV-1700) using dissolution medium as blank. The cumulative percentage drug release was calculated.

**Results and Discussion:**

The results of evaluation parameters for the nine formulations are shown in Table 2 & 3. The results of in vitro drug release of tablets for all the nine formulations are shown in Table 4, 5 and 6. The thickness of the tablet indicates that die fill was uniform. The thickness depends upon the size of the punch (8 mm) and the weight of the tablet (150 mg). The thickness of tablets from batch PF1-PF9 was found to be 2.50 - 2.86 mm and hardness was found to be 3.1 - 4.2 kg/cm². The friability of all the formulated tablets of promethazine HCl was found to be between 0.45 - 0.72 % and all the formulated tablets of promethazine HCl were shown the friability within the official limits. The weight variation for the tablets of all the (PF1-PF9) formulations was within the standard limits (±7.5%). All the formulated tablets (PF1-PF9) have shown in vitro dispersion time of less than 60 sec.
Among all the formulations, tablets prepared with crospovidone were shown less than 40 sec of dispersion time. The wetting time of all the formulations (PF1-PF9) are found to be within 39.30-68.33 sec which complies with the official limits. The drug content of all the nine formulations of promethazine HCl tablets was found to be within the range of 96.78-99.71% which was within the limits of IP specifications. The formulations PF1-PF3 were formulated with the help of sodium starch glycolate in concentration 2%, 3.5% and 5% respectively. The formulations PF4-PF6 were formulated with the help of croscarmellose in concentration 2%, 3.5% and 5% and the formulations PF7-PF9 were formulated with the help of crospovidone in concentrations 2%, 3.5% and 5% respectively. The formulations PF7-PF9 containing crospovidone shown 91.43-98.43% drug release which was the highest drug release compared to all the other formulations. The drug release profile for all the nine formulations are shown in Figure 1, 2 and 3.

**Table 1:** Formulation design of promethazine HCl orally disintegrating tablets

<table>
<thead>
<tr>
<th>Ingredients (mg)</th>
<th>Pf1</th>
<th>Pf2</th>
<th>Pf3</th>
<th>Pf4</th>
<th>Pf5</th>
<th>Pf6</th>
<th>Pf7</th>
<th>Pf8</th>
<th>Pf9</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSG</td>
<td>3</td>
<td>5.25</td>
<td>7.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Croscarmellose</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>5.25</td>
<td>7.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Crospovidone</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>5.25</td>
<td>7.5</td>
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<td>Aspartame</td>
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<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Raspberry flavour</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<td>3</td>
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<tr>
<td>Talc</td>
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<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Magnesium stearate</td>
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<td>3</td>
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<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MCC (q.s)</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

**Table 2:** Results of thickness, hardness, friability and weight variation of promethazine HCl tablets

<table>
<thead>
<tr>
<th>Formulation code</th>
<th>Thickness (mm)</th>
<th>Hardness (kg/cm²)</th>
<th>Friability (%)</th>
<th>Weight variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pf1</td>
<td>2.62±0.01</td>
<td>3.7±0.38</td>
<td>0.51</td>
<td>149.10±0.20</td>
</tr>
<tr>
<td>Pf2</td>
<td>2.63±0.07</td>
<td>3.4±0.33</td>
<td>0.48</td>
<td>151.09±0.33</td>
</tr>
<tr>
<td>Pf3</td>
<td>2.66±0.02</td>
<td>3.4±0.65</td>
<td>0.45</td>
<td>150.19±0.21</td>
</tr>
<tr>
<td>Pf4</td>
<td>2.63±0.05</td>
<td>4.2±0.25</td>
<td>0.72</td>
<td>150.33±1.76</td>
</tr>
<tr>
<td>Pf5</td>
<td>2.52±0.01</td>
<td>3.8±0.31</td>
<td>0.70</td>
<td>148.80±1.03</td>
</tr>
<tr>
<td>Pf6</td>
<td>2.53±0.05</td>
<td>3.8±0.72</td>
<td>0.67</td>
<td>150.33±2.12</td>
</tr>
<tr>
<td>Pf7</td>
<td>2.51±0.05</td>
<td>3.2±0.22</td>
<td>0.64</td>
<td>149.60±1.28</td>
</tr>
<tr>
<td>Pf8</td>
<td>2.50±0.05</td>
<td>3.1±0.30</td>
<td>0.60</td>
<td>150.43±1.71</td>
</tr>
<tr>
<td>Pf9</td>
<td>2.65±0.03</td>
<td>3.8±0.38</td>
<td>0.54</td>
<td>151.67±1.27</td>
</tr>
</tbody>
</table>

*Value expressed as mean ±SD, n=3*
Figure 1: In vitro drug release profile of promethazine HCl tablets formulated with sodium starch glycolate

Figure 2: In vitro drug release profile of promethazine HCl tablets formulated with croscarmellose

Figure 3: In vitro drug release profile of promethazine HCl tablets formulated with crospovidone

Conclusion:
A comparative study of three superdisintegrants (sodium starch glycolate, croscarmellose and crospovidone) was carried out using promethazine HCl as model drug by formulating nine batches (PF1-PF9) by direct compression method. The tablets were evaluated for parameters like thickness, hardness, friability, in vitro dispersion time, wetting time and percentage drug content. All the evaluation parameters of nine formulations were found to be within the IP limits. All the formulated tablets were examined for in vitro drug release studies. Among the three superdisintegrants, crospovidone showed maximum percentage drug release and hence it was found to be the ideal superdisintegrant for the formulation of promethazine HCl orally disintegrating tablets.

References:

Keywords: Superdisintegrants, promethazine HCl, sodium starch glycolate, croscarmellose, crospovidone - D S Sandeep
PREVALENCE OF NECK AND BACK PAIN AMONG PAEDIATRIC DENTISTS

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Abstract:
Occupational diseases are present worldwide. Dentists believe that they are at a higher risk for development of musculoskeletal disorders due to the postures attained at work. Hence, we conducted a study for understanding the prevalence of such ailments amongst the paedodontist population. We employed a cross-sectional study of 270 paedodontists who were selected at random and were asked to complete a self-administered questionnaire. The questions were about personal characteristics, job history, specific work habits and mostly pertaining to clinical dentistry with details of any recent occurrence of neck or back pain. Results tabulated showed a 79.6% of the paedodontists reported having experienced at least one episode of neck or back pain in the immediate past 12 months. This value is way above the occurrence of similar complaints seen among the general population which is estimated to be around 55%. The study concluded indicating that the incidence of neck and back pain among dentists is higher than general population. This may be attributed to extreme postures that may be attained during the clinical work and which may be extreme in paediatric dentists.

Keywords: Low back pain, neck pain, dentistry, Paedodontist

Introduction:
Locomotor system disorders are frequently seen in dentistry. It is known that the most painful regions are the cervical and lumbar spine. Factors associated with professional work may predispose to back and neck pain. On account of the narrow visual field of the oral cavity, having to work with a limited scope of movement constitutes high risks for low back and neck pain. It has been demonstrated that tensely maintained asymmetric body posture is a risk for low back pain (LBP); and prolonged static neck position and repeated movements are work-related risk factors for neck pain. In the light of these findings, the aim of this study is to investigate the risk factors associated with low back and neck pain in dentistry.

Materials and Methods:
Using a simple random sampling method, 270 dentists were selected and asked to complete a self-administered questionnaire, 240 dentists completed and returned the questionnaire. The questions were about age, gender, job history, work characteristics mostly pertaining to dentistry including physical risk factors at work plus any report about the occurrence of low back pain (LBP) and neck pain, place and duration of employment, number of patients visited per month, time and duration of work per day and the posture of body while working.

Part of the questionnaire was allotted to lower back pain and/or neck pain and included questions about the same. The included information was duration of musculoskeletal complaints; complaints in the upper or lower limb (e.g., feeling pain, paresthesia, and numbness). The participants were also asked if they received any treatments. Their responses were categorized as either “no treatment,” “drug,” “exercise,” or “physiotherapy.”
as a spreadsheet programme before being analysed using the SPSS software.

12 Basic statistics were calculated, including prevalence rates. Differences in prevalence of neck and back pain were calculated using the chi-square test for categorical variables and by the student t-test for continuous variables. p-values below 0.05 were considered statistically significant throughout.

Results:
Profile of respondents
Of the 270 dentists who answered the questionnaire:

Two hundred and forty questionnaires (88.8 per cent) were returned, fully or partially completed. Missing data were excluded from the analysis. It was noted that:

1) 44.6% were male and 55.4% were female (Table 1).
2) The age group under the study ranged from 21-62 years. Mean age was 28.4 years (SD = 5.94 years) (Table 2).
3) The years of work under the study ranged from 2-30 years. Mean being 3.440 (SD = 4.8453) (Table 2).
4) The hours of work in a day ranged from 1-12 hours. Mean being 4.765 (SD = 1.7247) (Table 2).
5) Most dentists (80 per cent) reported having at least one MSD symptom in the past 12 months (Fig 1).
6) Pain in the spine was significantly more likely to be reported by younger dentists (p<0.001) and dentists with less years of experience.
7) Lower back pain, which interfered with daily activity, was significantly more likely to be reported by dentists who worked shorter hours (p<0.05).
8) 19% of dentists with pain underwent physiotherapy to get rid of pain.

Over one-third of all dentists (36.4 per cent) had sought medical advice or treatment of MSD during the previous 12 months.

Discussion:
So far, many factors for development of musculoskeletal pain have been studied.

Table 1. Distribution Of Age Groups By Gender For Dentists Surveyed

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>33.75% (81)</td>
<td>46.66% (112)</td>
</tr>
<tr>
<td>30-39</td>
<td>8.33% (20)</td>
<td>6.25% (15)</td>
</tr>
<tr>
<td>40-49</td>
<td>1.66% (4)</td>
<td>1.25% (3)</td>
</tr>
<tr>
<td>50-59</td>
<td>0.83% (2)</td>
<td>0.83% (2)</td>
</tr>
<tr>
<td>60-69</td>
<td>0.00% (0)</td>
<td>0.41% (1)</td>
</tr>
<tr>
<td>Total</td>
<td>44.6% (107)</td>
<td>55.4% (133)</td>
</tr>
</tbody>
</table>

Table 2. Mean (±SD) Age, Sex, Experience, Working Hours Per Day,

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>Years of Work</th>
<th>Hours of Work In A Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean Age</td>
<td>28.40</td>
<td>1.45</td>
<td>3.440</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>5.940</td>
<td>0.498</td>
<td>4.8453</td>
</tr>
<tr>
<td>Minimum Age</td>
<td>21</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Maximum Age</td>
<td>62</td>
<td>2</td>
<td>30.0</td>
</tr>
</tbody>
</table>

However, we studied additional variables that may cause musculoskeletal disorders. To the best of our knowledge, there is scarce information about the epidemiology of musculoskeletal disorders.

Health care work is recognised as a high risk job for MSD; however most of the studies have been carried out in specific groups of healthcare professionals such as dentists and dental hygienists, nurses, radiologists, ophthalmologists, and physiotherapists. The dental profession however has one of the highest prevalence for MSD, 16-20.

It has been proven that postures which may exert a higher pressure on intervertebral disk as well as prolonged spinal
hypomobility are among important factors leading to degenerative changes in the lumbar spine and subsequent LBP. Since such postures are not uncommon in daily practice of a dentist, some authors believe that they are at a higher risk of developing musculoskeletal disorders than other job groups. Nonetheless, our results showed that the prevalence of LBP and neck pain in dentists is very much higher than other study groups.

Al Wazzan et al, in their study, reported that only 37% of those suffering back and neck pain sought medical treatment and concluded that these symptoms among dental personnel are not severe enough to ask for medications.

Alice laI et al in their study reported that the prevalence of self-reported MSD among dental personnel is high. Several work-related factors have been identified to be associated with musculoskeletal symptoms in varying body regions. One limitation of this study is the lack of objective measurement methods.

It is also thought that individual psychological properties, such as stress intolerance, which would be expected to contribute to incidence and intensity of locomotor pain needs to be included in future studies.

Conclusion:
It is understood that work duration and working postures are root cause of back and neck pain among the paedodontists. This study also highlights, the fact the incidence among dentistry to be higher than general population. We opine that the practice of dentistry is not per se an ignition for development of neck and low back pain, rather accelerates the process and increases the severity of symptoms due to the working posture.

References:
21. Alice laI 1, KyOo yin 1, Shivanthiballa2, Lay Waikhin 3, Nayakebp balla1, Linned Prevalence of musculoskeletal disorders in the dental profession in Brunei Darussalam.

Keywords: Low Back Pain, Neck Pain, Dentistry, Paedodontist

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Anoop Hegde

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A RESEARCH CRITIQUE ON THE LIVED-IN EXPERIENCES OF PATIENTS SUBJECTED TO CHEMOTHERAPY IN SELECTED HOSPITALS AT CHENNAI

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Abstract:
This qualitative study explored the experiences of patients subjected to chemotherapy. The research approach used in this study was phenomenology. Interviews were conducted with fifteen patients subjected to chemotherapy. The study was conducted at selected hospitals at Chennai. From the colaizzi’s analysis of the data seven dimensions-eight themes and fifty sub themes were emerged. These findings show that patients subjected to chemotherapy has lot of physical and psychological impacts. There was an association between the socio demographic variables and the lived in experiences of patients subjected to chemotherapy. The association was found between the educational status, type of family and the number of chemotherapy cycle. So, the patients need adequate education on the side effects from the Nurses during each cycle of chemotherapy. Therefore this study is important for nurses working in the cancer unit to make the patient to realize and aware the effects faced by the patients subjected to chemotherapy.

Keywords: Phenomenology, lived experiences, Chemotherapy, colaizzi’s

Introduction:
Cancer is a term that is used to refer malignant neoplasms. It is a disease of the cell in which the normal mechanisms of the control of growth and proliferation have been altered. It is invasive, spreading directly to surrounding tissues as well as to new sites in the body. A major concern with the diagnosis and treatment of cancer is the multifocality and multicentrality. The level of distress varies from women to women and within an individual in different situation and role.

Cancer is a disease of cells characterized by a loss of the normal control mechanisms that maintain tissue organization. Chemotherapy is the use of one or more chemical agents to eradicate the cancer cells or to stop tumour progress (Durr and Huff 1994.)

Chemotherapy is a systemic intervention and is appropriate when the disease is widespread, the risk of undetectable disease is high, and the tumor cannot be resected and is resistant to radiation therapy. The objective of chemotherapy is to destroy malignant tumor cells without excessive destruction of normal cells. Several types of cancers are now considered curable with chemotherapy, even in advanced stages. The most valuable intervention that can be offered to a patient with cancer is presence of nurse as a caring person. Its dimension consists of verbal expressions of empathy, positive regard, and availability of practical support.

Chemotherapy for malignancies, too advanced for surgery, which accounts for 80% of all cancers, is a scientific wasteland (Dr. Ulrich Abel, 1990). Amazingly, most patients cope well and face the difficulties in their lives with courage. For many patients the experience brings about a re-appraisal of goals and values, making life richer and more meaningful. Griffin (1998) identified and ranked the symptoms experienced among 155 cancer patients who received chemotherapy. The findings revealed that the
patients reported on the experience of physical symptom 13 and 7 psychological. Nausea was reported as the most severe symptoms followed by tiredness and loss of hair. The study suggested that a reduction in the severity of some symptoms experienced while receiving chemotherapy and a shift from concerns about physical to psychological issues.

The spiritual and existential matters often marks this phase of illness from diagnosis and treatment because women focus their legacy to their families, children and engaged in planning for their future. (Butler et al 2003)

The emotional side-effects of a person diagnosed as cancer and person who receives chemotherapy are different for everyone. They may even change during the treatment. Before starting chemotherapy, many patients feel anxious about not knowing what to expect and their upcoming treatments. Many patients said that they experienced depression and or emotional stress before and during chemotherapy. Emotional side-effects affects the cancer patient's day-to-day activities. Mitchell (2007) described the social and emotional effects of chemotherapy among 19 patients. The major themes that emerged from the data were, striving for normality, feeling-up, feeling-down, flagging, being sociable and anxiety, about the chemotherapy treatment.

Chemotherapy may bring about another cycle of emotional change, such as anger, denial, guilt, depression and acceptance, as well as impact on other aspects of psychosocial functioning. (Holland and Zitton 1991)

The severity of side-effects varies between individuals, the type of drug administered, and the type of care delivered, including information and other psychosocial interventions. (Coates et al. 1987), Elizabeth L.Mcgarvey (2001) explored the psychological sequel among women with cancer. The findings revealed that they experienced lower self-esteem, poor body image, and lower quality of life, and affects on sexuality.

In Sri Ramachandra Hospital, an average of 15 patients per month are admitted to the inpatient department for chemotherapy treatment in the general wards namely E6 and E7. The investigator felt that it is very important to elicit their lived-in experiences with regard to physical, psychological, social, spiritual, financial and sexual dimensions in order to support and help them to continue with their remaining chemotherapy cycle.

Subjective experiences of individual undergoing chemotherapy allow the practitioner to understand and gain insight on the patient current experience and support him/her with the use of their constructive coping strategies. This helps the nurses to develop strategies for the coping abilities of cancer patient.

So the investigator strongly believes that the feelings which the patients undergo must be explored. This realization, strongly motivated the investigator to do this research critique on lived-in experiences of patients subjected to chemotherapy. Through eliciting the lived-in experiences, it is possible to identify the patients felt needs in all dimensions which in turn will inspire the nursing care.

Nursing is a profession focused on assisting individuals, families and communities in attaining, maintaining, and recovering optimal health and functioning. Modern definitions of nursing define it as a science and an art that focuses on promoting quality of life as defined by persons and families, throughout their life experiences from birth to care at the end of life. So, the nurses play an important role as a supporter, collaborator, and motivator in order to help the patient to have an optimal health and functioning.

Materials and Methods:
Qualitative study design and phenomenological approach was selected. An in depth interview was conducted. The patients who had been admitted within the study period, and who fulfilled the inclusion criteria were selected with the sample size of 15. Inclusion Criteria were the patients subjected to chemotherapy, Patients who were admitted on the previous day of chemotherapy and staying in the hospital on 1st day of chemotherapy.

Prior to data collection, the necessary permission was obtained from the concerned authorities. Before
commencing the data collection the investigator got verbal consent from the patients. 15 samples who were admitted for chemotherapy were chosen for the study. The procedure was explained to each patient individually, ensuring comfort and privacy. The study was explained to each participant and informed them that their identity will not be revealed and confidentiality will be maintained and will be utilized for the research purpose only. Informed oral consent was obtained from the patients, and the interviews were audio-taped. An in-depth interview was done on a one-to-one basis.

The total time taken for collecting the data from each participant was 30-45 minutes. After the completion of the interview, each patient was given an opportunity to clarify the doubts.

**Results:**
Colaizzi’s data analysis framework was used to analyze the transcripts in this study. From the analysis of the data, seven dimensions-eight themes and fifty sub-themes emerged from the experiences of patients subjected to chemotherapy and they were as follows: The dimensions were physical, psychological, social, economic, spiritual and sexual dimension and various suggestions given by the patients and the level of satisfaction of the Nursing care as expressed by the patients.

**Discussion:**
From the analysis of the data, seven dimensions-eight themes and fifty sub-themes emerged from the patients subjected to chemotherapy.

A. Physical dimension

In physical dimension, the major themes identified were mouth ulcer, anorexia, loss of the sense of taste, hair loss, insomnia, tiredness and unable to perform household activities. All the 15 patients (100%) have experienced hair loss, mouth ulcer, insomnia and unable to perform household activities, 14 patients (93%) verbalized that they had anorexia and loss of the sense of taste.

“*My hair is falling like a leaf that falls from the tree during winter*”

“My mouth ulcer is troubling me like anything because of that I am not able to eat well and to discriminate the taste of different delicious foods”.

“At night, I am unable to sleep properly because of the generalized weakness”.

“I am not able to carry out the household activities like before this makes me stressful”.

The above findings were consistent with the study of Warren (1999) who used a qualitative design on reducing the discomfort following chemotherapy. The procedure itself can be associated with severe anxiety and discomfort for the patient. The author reports that the patients’ experience of discomfort during and after the procedure can be reduced by proper explanation of the whole
treatment process before starting the procedure.

B. Psychological dimension
The identified themes were anger, fear, feeling ashamed, disturbed body image and feeling of happiness. 15 patients (100%) felt ashamed of themselves because of their altered body image. 10 patients (67%) were anxious and worried about their illness and they got irritated often. 13 patients (87%) felt happy about the treatment.

“I get angry and irritated often”.
“Everyday I am worried about my children”.
“I am much troubled, that there is nobody to whom I can express my grief”.
“I have a shameful feeling that my hair is lost”.
“I feel that I have lost my self-esteem and body image when I look at others in the society”.
“I am so sad because I am ill”.
“I am very happy about the chemotherapy treatment”.

Marrs (2000) conducted a study by using qualitative techniques of grounded theory in identifying the patients perception of recovery after chemotherapy. 10 men and 15 women were interviewed one month after the first chemotherapy cycle. Verbatim transcript were analyzed for major themes. The results of this study highlights the need for patients concern and support with greater emphasis on their psychosocial needs. Nurses must also consider providing support to patients in the pre admission and recovery phase.

C. Social dimension
The identified themes were low self esteem, neighbours thoughts of misperception about the illness, problems with communication. 15 patients (100%) experienced problem in communicating with the neighbours, and had low self esteem. 10 patients (67%) felt that they had adequate family support.

“I know I can’t hide things but some how I will manage this problem and I will take care of myself and my family”.
“My friends are helping me to be happy in all the situations”.
“I’m highly emotional and I’m also worried about my prognosis”.

The above study findings coincided with the study of Elizabeth (2001) studied how the patients and the significant others felt about their social support services. The findings revealed that higher level of social support received from their peer group than from their family members.

D. Economical dimension
The following theme were based on the income. 12 patients (80%) belong to low socioeconomic background and treatment through military.

“If I hadn’t had ECHS scheme, I wouldn’t have taken the treatment and I would have died long before”.

E. Spiritual dimension
The identified themes were bargaining and thanking God. 14 patients (93%) expressed that they would visit the temple and pleaded with God to cure their illness and thanked God for helping them live for a while.

“Of course, I do believe in God, so I pleaded to him to help me to feel better everyday”.
“Even my enemy should not get this type of illness”.
“I should thank God for the life given back to me”.
“I believe him to make me live for a long time”.

The above findings were consistent with the study of Deegan (2007) analyzed the spiritual needs for the hospitalized terminally ill patients. The findings revealed that the spiritual needs should be met by the hospital staff and help the patient to be satisfied in all the other dimensions.

F. Sexual dimension
The identified theme was satisfaction of the spouse. Six patients (40%) expressed that they were unable to satisfy their spouse.

“I am not able to satisfy my husband”.

Keywords: Phenomenology, lived experiences, Chemotherapy, Colaizzi’s - Malarvizhi M
G. Satisfaction Of Nursing Care
13 patients (87%) expressed that they were satisfied with the level of care given by the nurses in the ward.

“Nurses are like god and they take care of me well during my illness”

H. Suggestion by The Patients
13 patients (87%) suggested to have a separate ward and separate nurse for treating the cancer patients.

“I feel that it would be better to have a separate nurse for each patient, during chemotherapy”.

Four (27 %) patients were illiterate and they were able to recognize the illness early and came for the treatment as soon as they diagnosed to have the illness. Four (27 %) were graduate and all these patients were diagnosed at the later stage and they have come for their treatment.

12 patients (80%) were from nuclear family and these patients experienced neglected family and they experienced courage to face the illness. Three patients(20%) were from the joint family and they felt that they were neglected from the family and now in hospital they could not accept the feeling of being alone.

Three (53%) patients had third cycle of chemotherapy who were able to cope well with their illness and they could face the illness with courage. Five patients (54%) had more than three cycle but they were not able to face their illness and they were anxious about their prognosis.

Conclusion:
Therefore the findings of this study is important for nurses working with patients subjected to chemotherapy. The investigator was able to find out that each patient is unique. Their experience and perception varied from person to person during the process of illness. The essential step in the health care system is to elicit the patient’s experiences and to counsel them to strengthens their self esteem by enhancing their compliance and abilities in order to meet their health needs.

Nurses need to expand their time for the patients to meet the other needs than the physical needs. Nurses need to improve their communication, knowledge through staff development programme. Nurses can be the supporter, counselor to the patients and strengthen their self reliance by the quality care.

Acknowledgement:
It’s my pleasure and privilege to record my deep sense of gratitude to Prof.P.V.Ramachandran, Chairman, Nursing Education, College of Nursing, SRU and my guide Dr.Eilean Victoria, Assistant Professor, Sultan Qaboos University, for his inspiring guidance, valuable suggestions, constant encouragement for the completion of the study. I am deeply indebted to my beloved parents. I owe my success to them who made this task possible through their support.

References:
A STUDY TO DETERMINE THE EFFECTIVENESS OF AN AWARENESS PROGRAMME ON KNOWLEDGE ON SUBSTANCE ABUSE AND ITS CONSEQUENCES AMONG THE STUDENTS OF A SELECTED PRE UNIVERSITY COLLEGE OF UDUPI DISTRICT, KARNATAKA

Charis Theou I, Asha K Nayak & Tessy Treesa Jose

Introduction:
Adolescence is a fluctuating period wherein they love to do things as they wish and something that gives them a thrill without reasoning and hence they need to be guided.

The study aims to determine the knowledge and find the effectiveness of an awareness program on substance abuse and its consequences among the PU College students.

The association between the pretest knowledge scores and the selected variables like age, gender, monthly income of parents, and education of parents, birth order and history of substance abuse in the family was explored.

Method:
A Pre-test post-test design was used. Fifty three students from Udupi district were selected by convenient sampling. The tool used was knowledge questionnaire on substance abuse and its consequences. Demographic proforma was used to collect the background information. SPSS software version 16 was used for data analysis.

Results:
Pretest knowledge shows that 91% of the students had average knowledge and about 2% of the students had poor knowledge whereas only 7% had good knowledge. The post-test result shows that 28(52.8%) students had good knowledge on substance abuse and its consequences. The indices show a steady increase in knowledge from 7.5% during the pre-test to 52.8% during the posttest with a mean difference of 4.23 between pre-test and post-test at 0.05 level of significance(p>0.001)

Conclusion:
Awareness programme helps students to gain knowledge and helps in enlightening their future.

Keywords: awareness programme, knowledge, substance abuse.

Various studies on substance abuse are being carried out because of the various reasons. A study carried out by the ministry of social justice and empowerment revealed that...
the rate of prevalence for various substance among the age group 12-18 was highest for which alcohol was 21.4% and the next prevalent was Cannabis with 3%, drugs of Opiate origin 0.7% and other illicit drugs were 3.6%. Apart from this, the study also surveyed the people who are at high risk and they were workers at transport, sex workers and children in the streets.  

A survey was conducted by the ministry of health in 14 cities of India on drug abuse. A total of 4648 members were surveyed among which 371 women abused drugs which totals up to 8% of them. Both men and women abused cannabis i.e. 40%, among the rest 33% used alcohol, 6% used sedatives and tranquillizers, 5% heroin, 5% painkillers, 5% opioids and 1% inhalants. 

The report given by Ministry of Health and Family Welfare revealed that in Delhi alone, 20 times increase in the sale and production was noted on Indian Made Foreign Liquor between 1982 and 1988. As a result, drinking members in the family increased leaving nearly 5 million addicts. The revenue from liquor was Rs.50 crore at the time of Independence and presently Rs.12,000 crore per year, every year Rs.60,000 crore goes for illicit liquor alone. Kerala stands first today in the consumption of liquor (8.3 liters) followed by Punjab (7.9 liters) against the National average of 5.7 liters. A survey conducted jointly by WHO and Alcohol and Drug information Center among the college students in Kerala found that the age at which they consumed liquor for first time is coming down from 19 in 1986, 17 in 1990 and 14 in 1994. 

A study conducted by Gincy in Mangalore University Colleges among 15,000 students showed that 0.4% of females and 7.04% of males have used substances varying from Ganja to Heroin. Among them, 0.4 % of the females and 6.6 % of the males were drug addicts. It also revealed that among 15,000 students under study 1050 students were addicts.  

Purpose of the study
Thus keeping into consideration the various different consequences that can be caused to the students who knowingly or unknowingly get trapped into the clutches of substance abuse the study is undertaken among the PU College students in order to guide them to choose the right path and make our nation a better place to live in.  

Objectives:
1. Determine the knowledge and find the effectiveness of an awareness program on substance abuse and its consequences among the PU College students.
2. Find the association between the pretest knowledge scores and the selected variables like age, gender, monthly income of parents, and education of parents, birth order and history of substance abuse in the family.

Hypothesis:
1. H₁: There will be a significant difference between the pre-test and post-test knowledge scores on substance use and its consequences among PU College students.
2. H₂: There will be a significant association between the pretest knowledge scores of PU College students on substance abuse and the selected variables.

Materials and methods:
The present study aimed at determining the effectiveness of an awareness programme on knowledge of substance abuse and its consequences among the students of selected PU College. Therefore an evaluative approach was adopted. The design selected for the study was one group pretest posttest design. The study was conducted in English medium PU College in Udupi Taluk, Karnataka. The sample size was calculated based on the pilot study findings and estimated sample size was 51. Total samples present in the study were 53. The samples were conveniently selected from 2nd PUC, B section. Ethical clearance was taken from the Dean of Manipal College of Nursing Manipal, Institutional ethical committee of Kasturba Hospital, Principal of the selected College and informed consent from the participants.

The instruments used for the study were Demographic proforma which had 10 items designed to gather the background information of the subjects like age in years, gender, monthly income of parents in rupees, education of
father, education of mother, birth order, history of substance abuse in the family, religion, place of residence and the type of family. A tool on knowledge questionnaire on substance abuse and its consequences was used. The items were constructed after reviewing the research and non-research literature. A blue print was made and based on blue print, items were constructed. Content areas included were meaning of substance abuse, causes of substance abuse, and consequences of selected substances, treatment and rehabilitation of the substance abusers. The knowledge score were arbitrarily categorized into poor = 0-9, moderate =10-18, good =19-26. The maximum possible score was 26.

To establish the content validity of the tool, the constructed tools were submitted to seven experts. The experts were selected on the basis of their clinical expertise, experience and interest in the problem being studied. Two experts were from the field of psychiatry, two from psychiatry social work, one from psychiatric nursing, and two from community health nursing. The experts evaluated each item in terms of its relevancy, adequacy and appropriateness. All the items in the demographic proforma had 100% agreement and were retained as they were. A tool on knowledge on substance abuse and its consequences having 40 questions were given for validation and depending on the suggestions and opinion of the experts, some items were modified and a total of 26 questions were included for the study. The split half method using spearman brown prophecy formula was used to calculate the reliability of the knowledge questionnaire among 20 students. The reliability coefficient of the tool was(r=0.805). The tool was found to be reliable.

The content of the awareness programme on substance abuse and its consequences was developed based on the literature review and opinion from the experts. The content validity was established. The areas included in the awareness programme were meaning of substance abuse, causes of substance abuse, and consequences of selected substances, treatment and rehabilitation of the substance abuser. The awareness programme was conducted to the group of students which had lecture, discussion and an video on substance abuse and its consequences. The session was conducted by using Power Point slides.

The pilot study was conducted among twelve PU College students. On day one, the demographic proforma and a knowledge questionnaire on substance abuse and its consequences were administered. An awareness programme on substance abuse and its consequences was given on the same day. On eight day, the post test was conducted by administering the same questionnaire on substance abuse and its consequences.

The SPSS statistical package (16 version) was used for analysis of the data. Descriptive statistics (frequency and percentage) were used to describe the sample characteristics and inferential statistics (paired sample ‘t’ test) were used to determine the effectiveness of the awareness programme. The significance between the pre-test and post-test knowledge score is computed with the paired sample ‘t’ test which requires normal distribution. The Shapiro wilk test was done to test the normality.

Results:
The table 1 describes the sample characteristics in terms of frequency and percentage of 53 students. Out of 53 students, females were 35 (66%). Majority of them were 17 years old. Majority of samples i.e. 23(43.4%) students family income was > 20,001 Rupees. The fathers’ education was graduation for 28 (52.8%) students and mothers education was higher secondary for 21 (39.6%) samples.

Knowledge and effectiveness of an awareness programme on substance abuse and its consequences among the PU College students.

Figure 1 indicates that majority of the students i.e. 90.6% of the students had average knowledge, 1.9% of the students had poor knowledge whereas only 7.5% had good knowledge on substance abuse and its consequences.

Figure 2 indicates that among 53 samples, 4 (7.5 %) had good knowledge during the pre-test. Twenty eight (52.8%
of the samples had good knowledge after the intervention. The indices show a steady increase in the knowledge from 7.5% during the pre-test to 52.8% during the post-test.

The significance between the pre-test and post-test knowledge score was computed with the paired sample t' test which requires normal distribution. The Shapiro wilks test was done to test the normality. This test shows that the samples are normally distributed.

The data presented in the table 2 show that the obtained t' value is 11.36 which is significant at 0.05 level. Hence the awareness programme was an effective method to increase the level of knowledge among the PU College students.

**Association between the pre-test knowledge scores on knowledge on substance abuse and its consequences and the selected variables.**

The findings of the study revealed that the computed chi square values for each variables were age( ?^2_{(4)}=5.379, p<0.252), gender( ?^2_{(2)}=0.703 p=0.599), monthly income (?^2_{(1)}=1.982 p<0.675), education of father (?^2_{(4)}=15.01, p<0.031), education of mother(?^2_{(4)}=9.351 p<0.283 ), birth order (?^2_{(4)}=5.141 p<0.135 ), history of substance abuse in the family(?^2_{(2)}=4.866 , p<0.085), religion(?^2_{(2)}=2.385 , p<0.677), place of residence (?^2_{(1)}=3.053 p<0.531) and type of family was (?^2_{(2)}=0.981 p<0.422). All the above variables were not found to be statistically significant at 0.05 level of significance. Hence it was inferred that the present knowledge was independent of all the selected variables.

1. Karnool R. A study to assess the effectiveness of structured teaching programme (STP) on knowledge of engineering college students regarding drug addiction in selected engineering colleges at Bangalore. 2013

**Table 1:** Frequency and percentage distribution of sample characteristics. 

<table>
<thead>
<tr>
<th>Sample characteristics</th>
<th>Frequency(f)</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>28</td>
<td>52.8</td>
</tr>
<tr>
<td>Second</td>
<td>22</td>
<td>41.5</td>
</tr>
<tr>
<td>Third</td>
<td>03</td>
<td>05.7</td>
</tr>
</tbody>
</table>

**Table 2:** Mean and 'p' value of the pre-test and post-test knowledge scores of PU College on substance abuse and its consequences. (n=53)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Mean difference</th>
<th>SD difference</th>
<th>t'</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>14.24</td>
<td>2.41</td>
<td>4.23</td>
<td>0.45</td>
<td>11.36</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Post-test</td>
<td>18.47</td>
<td>2.86</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: Pie diagram showing Knowledge of PU college students on substance abuse and its consequences. n=53

Figure 2: Bar diagram on comparison between pre-test and post knowledge score of PU college students on substance abuse and its consequences. Effectiveness of awareness programme on substance abuse and its consequences n=53

**Discussion:**

This study reveals that 90.6% of the students had average knowledge and 1.9% of the students had poor knowledge whereas only 7.5% had good knowledge. The findings of
the present study is supported by a study conducted in Sikkim on the effectiveness of an awareness programme on substance abuse and its consequences among the adolescents in a selected coaching center. It was revealed that 56% of the students in the pretest had good knowledge and 48% had average knowledge.7 Present study also supports a study conducted on knowledge of psychoactive substance use among secondary school students in Dodoma which reported that majority of the participants i.e. 399 (99.3%) had knowledge on definition and types of psychoactive substances. Ninety eight percentage of the participants were knowledgeable on the effects of psychoactive substances and 42(10.4%) were aware of the places where the psychoactive substances can be found.8 Another survey conducted on substance use among adolescent high school students revealed that most of the samples had knowledge on the illicit drugs where 84.6% in urban and 61.5% in rural had knowledge on tobacco, 61.5% in the urban and 30.8% in the rural knew about alcohol, 11.5% in the urban and 57.7% in the rural area had knowledge on cannabis.7

In the present study, 4 (7.5 %) had good knowledge during their pre-test and 28 (52.8%) of the samples had good knowledge during the post-test. The indices show a steady increase in knowledge from 7.5 % during the pre-test to 52.8% during the post test. The present study is also supported by the study conducted on the impact of health education programme on knowledge of students on drug abuse in Mangalore in the year 2005 revealed that the students had no knowledge regarding substance use before the education programme with a mean score of 19.95 which was increased during the postest to 40.3 at 0.05 level of significance (t\textsubscript{119}=37.744, p ≈ 0.05).4 The present study also supports the study conducted by Raju to assess the effectiveness of structured teaching programme on knowledge of substance use among the engineering students of Bangalore in 2013. It was revealed that the pretest score was 48.37% with a mean of 14.51 and standard deviation of 3.8 which was increased during the posttest to 76.63% with mean of 22.99 and standard deviation of 3.2 indicating the effectiveness of the teaching programme9

Conclusion:
Substance abuse is a major health problem recurring among the college students and hence they need to be taught and guided in every walk of life. Hence awareness programmes helps the students to be away from using substances. Overall the study helps in improving the knowledge on substance abuse and its consequences among the PU College students.

Acknowledgement:
We express our sincere thanks to Dr. Anice George, Dean, MCON, Principals of the selected PU Colleges for giving us permission to conduct the study, Mrs Champa Sharma for granting us permission to use the video on substance abuse and its consequences and all the participants of the study.

References:

Keywords: awareness programme, knowledge, substance abuse. - Charis Theou I
STRESS AMONG EARLY ADOLESCENTS AND MATERNAL AND TEACHERS ROLE PERCEPTION IN ADDRESSING ADOLESCENTS’ STRESS IN SELECTED SCHOOLS OF THIRUVANANTHAPURAM

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Abstract:
Objective: The objectives of the study were to assess the stress of early adolescents and to describe the role perceptions of mothers and teachers in addressing adolescent stress.

Materials and Methods: This quantitative descriptive survey was conducted in two phases in Thiruvananthapuram district, Kerala. Data were collected from early adolescent children (959), their teachers (61) and mothers (136). In the first phase, level of stress and source of stress among early adolescent children and teachers’ role perception in addressing adolescent stress were measured. In the second phase, role perception in addressing their adolescent’s stress was assessed among mothers of adolescents with high stress. Result: A total of 97 (10.1%) adolescents had severe stress. Majority of adolescents have cited mothers’ and fathers’ parenting role as their major stressor (56.5% and 53.5% respectively). Mothers reported that over watching of television is a major cause of lack of interest in studies and that is the main reason for stress at home. 37.7% of the teachers felt that school is giving a lot of academic stress to the child. Conclusion: The study finding calls for collective actions of student-teacher-parent associations to reduce stress of adolescents.

Key words: Stress, Early adolescents, level of stress, source of stress, maternal role perception, Teachers’ role perception.

Introduction:
Adolescence can be a challenging time for children, parents and teachers alike. Most often parents feel unprepared and they may view the years from 10 through 14 as a time just “to get through.” Growing up—negotiating a path between independence and reliance on others—is a tough business. It creates stress, and it can affect the mental health status of young people ill-equipped to cope, communicate and solve problems. Adolescence, which literally means, ‘to grow in to maturity’, is generally regarded as the psychological, social and maturational process by the pubertal changes. It involves three distinct sub phases: early adolescence, middle adolescence and late adolescence. Children are forced to listen messages regarding their safety and security. Moreover, fears and worries are prevalent during this period of development. Early adolescent children spend much of their waking hours in school-related activities. Thus teachers also contribute to the contextual environment of school-age children. Recent reports in the news-papers and media bring horrible pictures of the increasing adolescent suicide in India, especially in Kerala. In the year 2010, National Crime Bureau’s study disclosed 1640 boys and 1490 girls committed suicide in India. Over expectation of the parents about their adolescent children in academic and extra-curricular activities and incapability of their adolescent boys and girls leads to adjustment problems in the students both at academic and societal level. This signifies the importance of assessing the level and source of stress among adolescents in Kerala. The objective of the study is to assess the stress of early adolescents and to describe the role perceptions of mothers and teachers in addressing this problem. This will
help to design effective measures at family and community level to alleviate stress of adolescents.

**Materials and methods:**

The study was a quantitative descriptive survey conducted in two phases in three randomly selected schools of Thiruvananthapuram district. In the first phase, level of stress and source of stress among early adolescent children and teachers' role perception in addressing adolescent stress were measured. In the second phase, role perception in addressing their adolescent's stress was assessed among mothers of adolescents with high stress. Population for the present study was early adolescent children in the age group of 10 to 14 years studying in 5th-9th standard, their mothers and teachers. Estimated sample size was 900. Total of 959 early adolescent children were included in the study. Samples of teachers in the present study were all teachers who were taking classes for the selected children and who were present during data collection. In the present study 61 teachers have participated in the study. In phase II of the study mothers of early adolescent children were the samples for the study. All mothers of selected early adolescent children with high stress were selected as the sample. In the study 76 mothers were included in the study.

Multi stage Cluster sampling was used to select the early adolescent children. Self-report was used as the technique to collect data from early adolescent children, mothers and teachers. There were 6 tools used for data collection.

- **Tool 1, 2 and 3:** Socio-demographic proforma of early adolescent children, mothers and teachers respectively.
- **Tool 4:** Adolescent stress assessment scale - has two sections.
- **Tool 5:** Semi structured questionnaire to assess maternal role perception in addressing adolescents' stress: Consists of three domains- maternal role perception in prevention, detection and reduction of adolescent stress.
- **Tool 6:** Semi structured questionnaire to assess teacher's role perception in addressing adolescents' stress: Consists of three domains- teachers' role perception in prevention, detection and reduction of adolescent.

Reliability coefficient ‘r’ for adolescent level of stress scale was 0.8 and source of stress was 0.74. Prior administrative permission was obtained. On the scheduled date questionnaire for collecting socio-personal details and stress assessment scale was given to the students. An average of 30 minutes was taken by each class to fill the tool. On the same day role perception of teachers in addressing adolescent stress was collected using semi-structured questionnaire. In the second phase after analyzing the stress of early adolescent children, children with high stress were selected. Semi-structured questionnaire for assessing maternal role perception in addressing adolescent stress was send to mothers through children. Filled questionnaires were collected back.

**Statistical Methods:**

The obtained data were analyzed based on the objectives by using descriptive and inferential statistics. Frequency and Percentages were used to describe the demographic characteristics of sample, source of stress and role perceptions of mothers and teachers. Mean and SD was used to describe the level of stress.
Results:

Section 1: Socio-demographic data of early adolescents

Table 1: Frequency and percentage distribution of selected socio-demographic variables of early adolescent children (N = 959)

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Socio-demographic variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>191</td>
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<td></td>
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<tr>
<td>6</td>
<td>200</td>
<td>20.9</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>180</td>
<td>18.8</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>196</td>
<td>20.4</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>192</td>
<td>20.0</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>428</td>
<td>44.6</td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>531</td>
<td>55.4</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Number of children in the family</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single child</td>
<td>145</td>
<td>15.1</td>
<td></td>
</tr>
<tr>
<td>Two children</td>
<td>701</td>
<td>73.1</td>
<td></td>
</tr>
<tr>
<td>More than two children</td>
<td>113</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Birth order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>453</td>
<td>47.2</td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>455</td>
<td>47.4</td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>36</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>More than three</td>
<td>15</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Type of parenting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both parents</td>
<td>835</td>
<td>87.1</td>
<td></td>
</tr>
<tr>
<td>Single parent</td>
<td>52</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Father abroad</td>
<td>72</td>
<td>7.5</td>
<td></td>
</tr>
</tbody>
</table>

Section 2: Level of stress of early adolescents

The mean of stress scores was 55.31 and the standard deviation was 12.75.

![Fig 1: Distribution of early adolescent children according to their level of stress](image)

Section 3: Source of stress of early adolescents

When assessing intrapersonal stressors, 28.6% samples reported physical health problems as highly stressful stressor whereas 20.2% of adolescents felt their loss of interest in studies as highly stressful factor. Among interpersonal stressors, majority of adolescents cited mothers’ and fathers’ parenting role as their major stressors (56.5% and 53.5% respectively). 54% perceived discrimination from parents as highly stressful. For 45.9% of children teachers were high stress inducing agents. 36.7% worried about their conflicts with siblings whereas only 13.7% of adolescents cited problems in friendship as their major stressor. In extra personal stressors, adolescents perceived poor housing (44.6%), socio-economic status (37.2%), workload (40.6%), and homework (36.2%) as the major stressors.

Section 4: Role perception of mothers of early adolescents in addressing adolescent stress.

Majority of mothers felt that children had stress due to academic reasons like difficulty in studies (61%), inadequate time for leisure (44.8%), lack of good friends (23.5%), sickness and absenteeism (38.2%) and economic problems (13.9%). 8.3% of mothers viewed domestic problems as a major stressor of children. More than half of the samples (51.4%) complained that children spent too much time in watching television and play which causes lack of interest in studies and that is the main reason for stress at home. Only 41.9% of mothers agreed that they discuss matters freely with their children. Only 38.2% of mothers found time to visit school and meet teachers and discuss their children’s school performance. 61.8% of mothers agreed that they knew the friends of their children very well. 16.9% of mothers in the selected sample had tried to find out the stress level of children and solve the problem. It was interesting to note that 94.1% of the selected mothers wanted to follow a friendly parenting style. 5.9% showed interest in authoritarian parenting system. 53.7% of mothers tried to prepare a home environment which is contusive for her adolescent child to share and discuss his/her problems. 47.7% of mothers believed that discipline and punishment is necessary for the character development of the adolescent child. Mothers viewed school as the best place for molding the child’s individuality and character. Child should learn strategies for coping with stress from the school itself.

Mothers explored the strategies to adopt in order to
prevent, reduce and manage stress among early adolescent children.

Section 5: Role perception of teachers of early adolescent children in addressing adolescent stress.

96.7% of the teachers agreed that their adolescent students had stress and there are genuine reasons for their stress: school is giving a lot of academic stress to the child (37.7%); teachers find time to talk with their students other than the academic matters (96.7%); able to recognize the features of stress in their students (85.2%); allowed the students to discuss their personal problems with them (91.8%). Teachers expressed strategies for preventing, reducing and managing stress in early adolescent children.

Discussion:

The present study found that 10.1% of adolescents had severe stress, 53% had moderate stress and 36.9% had mild stress. Mean stress score was 55 and standard deviation was 12. Majority of adolescents experienced moderate stress.

A study in Kerala among children in the age group from 4 to 17 years where severe stress was 1.9% A study held in Brazil by C. R. Sbaraini and L. B. Schermann revealed a higher level of stress (27.2%) among adolescents over 10 years. 

It was baffling to note that early adolescents (56.5% and 53.5%) felt that parents and teachers were the stress inducers. Being impulsive and closer to peers rather than parents and teachers is a part of adolescence. Being controlled by teachers and parents like coming home in time, not spending too much time on outdoors, television and games, being punctual and complying with homework etc may be construed as stressors by adolescents. Eventhough mothers agree that their child is stressed, they do not perceive that their parenting style had an influence on their stress. The finding of the present study signifies the importance of exploring the parenting styles and attitude of mothers in caring their adolescent children.

Conclusion:

Study revealed that in the current scenario of societal and educational setup, early adolescents are experiencing stress. Major stressors of early adolescent children were identified from the home and school environment. Stressors that were identified as highly stressful were parenting role of parents, teachers, work load, home-work, high expectation of parents, parental conflicts, economic factors etc. Study also identified that mothers and teachers perception in addressing adolescent stress was not related either to their parenting or teaching behaviours. Inspite of mothers and teachers recommendations of suitable strategies to prevent stress among adolescents at school or home, early adolescent children had identified them as their stressful factors. This indicates that there guidance is required for mothers or teachers in identification of stress of adolescents. School administration should plan strategies to prevent and reduce stress of academics. In the present study there is uncertainty of data as the investigator could not directly meet the mothers for data collection.

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Original Article

CORRELATION BETWEEN BMI AND PREGNANCY OUTCOME AMONG POSTNATAL MOTHERS WITH PREGNANCY INDUCED HYPERTENSION IN SELECTED HOSPITALS BANGALORE

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Abstract:
Title: Correlation between BMI and pregnancy Outcome among postnatal mothers with pregnancy induced hypertension in selected hospital Bangalore.
Objectives: To identify and correlate BMI and pregnancy Outcome among postnatal mothers with pregnancy Induced hypertension.
Method: A non experimental correlation design was utilized among 80 postnatal mothers who were diagnosed as Pregnancy induced hypertension during their antenatal period selected as samples by using purposive sampling technique. Demographic data were collected by interview method, their BMI was calculated, pregnancy outcomes were identified from records by using an outcome checklist.
Results: Underweight mothers had low birth weight babies and received NICU care. Among normal weight mothers 17.5 % delivered by LSCS, 15% babies were low birth weight babies 12.5 were preterm babies among them 10% received NICU care. In the overweight group 18.75% undergone LSCS, 18.75% were LBW and 1.25% VLBW, 8.75% babies were preterm, 12.5% newborn received NICU care. Among Obese mothers 8.75% delivered by LSCS, 6.25% of LBW babies, 5% were preterm and all of them received NICU care. There is a positive correlation between BMI and diagnosis and type of delivery. Significant at .01 and .05 Level (p value .008 and .019 respectively). Negative correlation between birth weight and diagnosis and gestational age. r = -.499 significant at .01 level (p value .000)
Conclusion: Obesity and under weight is a leading, preventable cause of mortality worldwide. Preeclampsia increases maternal and perinatal morbidity and mortality rates. All women who are in reproductive age group and under risk to develop pregnancy induced hypertension need to be educated about to maintenance of normal weight before pregnancy. Nurses have more responsibility on creating awareness among women how to maintain normal weight to avoid development of complications to the mother and newborn.
Keywords: BMI, Pregnancy outcome, Pregnancy Induced Hypertension, Low birth weight.

Introduction:
Uncomplicated course of pregnancy, which results in normal growth and development of the foetus, is dependent on many factors, individual one as well as factors associated with one another. In addition to influence of environment and genetic predisposition one of the factors is maternal weight before and during gestation.

Ninety nine % of maternal deaths occur in developing countries. In developing countries a quarter of a million women still die in pregnancy and childbirth each year. The causes of 80 % of all maternal deaths are severe bleeding, infections, and high blood pressure during pregnancy and unsafe abortion. The report trends in maternal mortality show that the maternal mortality ratio for obese pregnant women was 4.6 times higher than underweight mothers. The maternal morbidity ratio reached 41 % in underweight mothers and 70 % in obese mothers. The obesity and underweight were still as a risk factor for maternal and neonatal mortality and morbidity. The annual number of maternal deaths dropped from more than 543,000 to 287,000 a decline of 47 per cent from 1990 to 2010.1

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The Institute of Medicine in 1995 demonstrated that low maternal weight gain in the second trimester was associated with decreased birth weights ranging from 48 to 248 grams, depending on the pattern of weight gain in the other trimesters. Similarly, in the year of 1996 also demonstrated that low prenatal weight gain, particularly involving the second trimester, significantly decreased birth weight. Finally 1998 showed significantly lower maternal weight gain between 28 and 32 week gestation resulted in infants born small for gestation compared to normal weight infants.2

Improvements of maternal, foetal, and child health are key public health goals. In recent years, maternal pre pregnancy body mass index (BMI) has increased among the childbearing age women in developed countries. It has been shown that women who are overweight or obese at the start of pregnancy are at increased risks of poor maternal and child health outcomes. Several recent studies reported that pre pregnancy BMI was positively associated with infant birth weight. Furthermore, women who gain weight excessively or inadequately during pregnancy are at increased risks of poor maternal and child health outcomes. Weight gain during pregnancy within the recommended range (11 to 40 pounds) remained constant during the last 10 years. Several studies have shown that maternal excessive gestational weight gain (GWG) was associated with increased risks of pregnancy-induced hypertension, gestational diabetes mellitus (GDM), caesarean delivery and large for gestational age infant, and maternal inadequate GWG was associated with increased risks of low birth weight and small for gestational age infant.3

Statement of the Problem
“A study to assess the relationship between body mass index and pregnancy outcome among postnatal mothers with pregnancy induced Hypertension in postnatal ward at selected Maternity Hospitals, Bangalore.”

Objectives of the Study
1. To assess the body mass index among postnatal mothers with Pregnancy Induced hypertension. 
2. To assess the pregnancy outcome among postnatal mothers with Pregnancy Induced hypertension
3. To find out the relationship between body mass index and pregnancy outcome among postnatal mothers with Pregnancy Induced hypertension.
4. To find out the association between body mass index and pregnancy outcome with selected background variables among postnatal mothers with Pregnancy Induced hypertension.

Review of Literature
Influence of high body mass index before pregnancy on the risk of hypertension in pregnancy revealed that rate of hypertension was higher (55.5 %) compared to normal weight women (33%).4 Frequencies of hypertension increased with the extent of super obesity (82 %). Foetal macrosomia, pre-eclampsia, gestational diabetes and foetal structural anomalies increased with super obese mothers compared to obese mothers (28 %).5

Co relational research identified obese pregnant women were compared to 320,148 pregnant women of normal weight. The result of the study was cephalopelvic disproportion, foetal macrosomia, preeclampsia, gestational diabetes, and foetal structural anomalies increased with 63 % in obese maternal body mass index.6

Increasing maternal body mass index was associated with adverse pregnancy outcomes including hypertension in pregnancy 10 %, gestational diabetes 12 %, and caesarean delivery 30 %, in mothers and hypoglycaemia 15 %, jaundice 17 % in their neonates. But it was less common in normal weight mothers and their neonates.7 Underweight women more chance to develop preterm labour 19 % and post partum haemorrhage (PPH) 20 % and their neonates more chance to develop low birth weight 40 %, hypoglycaemia 20 % and jaundice 10 %. Prolonged or post term delivery was high in underweight women.8

Above studies cited here stating the relationship and association between BMI and pregnancy outcome.
Method:
After obtaining administrative permission from the authorities of hospital, purpose of the study was explained to them and an informed consent was obtained before starting the study.

The present study was adopted an explorative approach and the Non experimental co-relational research design. A total of 80 postnatal mothers who were diagnosed with pregnancy induced hypertension during their antenatal period were selected as samples by purposive sampling.

Eligibility criteria’s were postnatal mothers with different levels of body mass index under the age group of 18-45 years and Postnatal mothers who have booked early that is before 12 weeks of gestation and having antenatal card. Postnatal mothers with pre-existing medical conditions were excluded. Body mass index table: It consist of body mass index table of National academy of science to assess the body mass index of selected samples. This include four categories of body mass index such as underweight, (<19.8) normal weight (19.8 – 25), over weight (25.1 – 29) and obese (> 29.1). The body mass index of mother is assessed by Weight (KG)/ (Height in meter). 2 Part two also consist of recordings of body mass index.

Tools developed by the researchers were validated and tested for its reliability. The equivalence of this tool was checked by inter observer method by using the formula number of agreements/ number of agreements + number of disagreements. The reliability obtained for maternal outcome checklist was r1 = 0.95 and for neonatal outcome checklist was r1 = 0.93 which indicating that the tools were reliable. Tools used were, Tool 1: demographic variable, Tool 2: It consist of body mass index table and recordings of body mass index values during first antenatal visit and weight at the time of admission for labour. Tool 3: pregnancy outcome checklist which includes maternal and foetal outcome.

The study was carried out using interview and analysis of records. Relevant information (background data) from the study group was collected for which the investigator personally interviewed each woman with the help of background data sheet. The responses were recorded in the space provided in the questionnaire and pregnancy outcome were marked in the checklist by analysing records.

Results:
Data Analysis Procedure: Statistical analysis was done using SPSS version 16. Frequency and percentage were computed for categorical variables like age groups, education, religion, occupation, income, parity, physical activity and diagnosis of samples with pregnancy-induced hypertension. Pearson correlation used to find out correlation between variables, Chi-Square test was used to find out an associate between BMI and selected demographic variables. Comparisons of demographic characteristics of samples among underweight, normal weight, overweight and obese are presented in Table 1. Distribution of BMI values among postnatal were shown in figure.1 Pregnancy outcomes were presented in Table 2 which includes types of delivery, gestational age, birth weight and NICU care. Correlations between variables were presented in Table 3.

Figure 1 shows that percentage distribution of postnatal mothers according to their BMI. 48.75 % of the samples were in normal BMI, overweight samples were about 37.5 %, and underweight samples were 2.5 %.

Table 2 reveals frequency and percentage distribution of pregnancy outcome based on BMI category. Underweight mothers had low birth weight babies and received NICU care. Among normal weight mothers 17.5 % delivered by LSCS, 15% babies were low birth weight babies 12.5 were preterm babies among them 10% received NICU care. In the overweight group 18.75% undergone LSCS, 18.75% were LBW and 1.25% VLBW, 8.75 babies were preterm, 12.5% newborn received NICU care. Among Obese mothers 8.75% delivered by LSCS, 6.25% of LBW babies, 5% were preterm and all of them received NICU.

Table 3 shows there is a positive correlation between BMI and diagnosis (as BMI increases severity of disease
condition increases) and type of delivery that is incidence of LSCS was high among high BMI mothers. Results showed negative correlation between birth weight and diagnosis and gestational age and positive correlation between diagnosis and type of delivery.

Association between pregnancy outcome and selected demographic variables. Study findings revealed that following demographic variables are significantly associated with pregnancy outcome at 0.05 level.

There is a significant association between Occupation and BMI $\chi^2 = 12.838$ p value $0.046 < 0.05$, Occupation and Birth weight $\chi^2 = 1.092$ p value $0.005 < 0.05$, physical activity and birth weight $\chi^2 = 10.47$ p value $0.033 < 0.05$, Diagnosis and type of delivery $\chi^2 = 17.16$ p value $0.000 < 0.05$, Diagnosis and birth weight $\chi^2 = 30.98$ p value $0.000 < 0.05$, Diagnosis and NICU care $\chi^2 = 14.61$ p value $0.001 < 0.05$

Table: 1 Demographic Variable

<table>
<thead>
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Keywords: BMI, Pregnancy outcome, Pregnancy Induced Hypertension, Low birth weight. - Prathima P
Table: 2 Percentage distribution of Pregnancy Outcome

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<td>N</td>
<td>%</td>
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<td>25</td>
<td>31.25</td>
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<td>14</td>
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<td>30</td>
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<td>LBW</td>
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<td>12.5</td>
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Table: 3 BMI and correlation

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<tr>
<td>Preterm</td>
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<td></td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
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</table>

Discussion:
The present study indicated that maternal pre pregnancy weight related with greater risks of pregnancy-induced hypertension, caesarean delivery, preterm delivery and prematurity, birth weight at birth. Also reveals that there is a correlation between BMI and pregnancy outcome and association between demographic variable and pregnancy outcome.

A comparative study conducted to investigate the impact of maternal obesity on pregnancy outcomes. Rates of pregnancy complications and neonatal outcomes were collected from perinatal data list and compared between women with normal pre pregnancy body mass index and those with an obese pre pregnancy body mass index. Rates of pregnancy complications and neonatal outcomes were also evaluated by the level of obesity, severe obesity, and morbid obesity (BMI>30, BMI=35-39.9 and, BMI>40). Rates of gestational diabetes and gestational hypertension were higher for obese 62 % versus normal weight only 10 % in gravid. Women with morbid or severe obesity had a greater incidence of gestational diabetes and gestational hypertension. This is similar to present study.

Another study which was similar to present study prospective population-based cohort study was done to evaluate morbidly obese (BMI>40) women have an increased risk of pregnancy complications and adverse perinatal outcomes. The result of the study was an increased risk of the following outcomes: preeclampsia 20 %, ante partum stillbirth 15%, caesarean delivery 35 %, instrumental delivery12 %, shoulder dystocia 10 %, meconium aspiration 40 %, foetal distress 30 %, early neonatal death 7%, and large-for-gestational age 10 % was found women with BMIs between 35.1 and 40 but to a lesser degree compared to BMIs above 40.33 In this study 8.75 % of obese mother were delivered by LSCS and 6.25 % of newborn babies were LBW.

Conclusion:
Obesity and under weight is a leading, preventable cause of mortality worldwide and authorities view it as one of the

Keywords: BMI, Pregnancy outcome, Pregnancy Induced Hypertension, Low birth weight - Prathima P
most serious public health problems of the 21st century. In
developing countries the obesity and underweight were
still as a risk factor for maternal and neonatal mortality and
morbidity. Preeclampsia increases maternal and perinatal
morbidity and mortality rates. This study revealed that
there is a correlation between BMI and pregnancy
outcome. Result of this present study and other studies
cited in this article are stating that there is association
between BMI and Pregnancy outcome which is modifiable.

All women who are in reproductive age group and under
risk to develop pregnancy induced hypertension need to be
educated about to maintenance of normal weight before
pregnancy. Nurses have more responsibility on creating
awareness among women how to maintain normal weight
to avoid development of complications to the mother and
newborn.

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RARE VARIATION IN THE ORIGIN OF LEFT TESTICULAR ARTERY FROM LEFT EXTERNAL ILIAC ARTERY: A CASE REPORT

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Abstract:
Testicular artery usually arises from the antero-lateral part of the abdominal aorta below the origin of the renal arteries. Very rarely variations in the origin of the testicular arteries were observed. During routine dissection for undergraduate medical students, an abnormal origin and course of the left side testicular artery was detected in a 55-year-old male cadaver. On the left side, testicular artery arose from the external iliac artery half way before its entry into front of the thigh. Later it runs in the inguinal canal to reach the testis. In contrast, right side testicular artery has normal origin and course. Such variations in the origin and course of the testicular artery are important in surgical and diagnostic interventions to avoid diagnostic and surgical errors to prevent hazardous complications like testicular hypoperfusion and atrophy.

Keywords: Rare variation, Testicular artery, External iliac artery

Introduction:
The testicular arteries are paired vessels that usually arise from the abdominal aorta at the second lumbar vertebral level. Each artery passes obliquely downwards and posterior to the peritoneum. Descending on the posterior abdominal wall, it reaches the deep inguinal ring where it enters the spermatic cord [1, 2]. There are reports about the variant origin of testicular artery arising from the renal artery, accessory renal artery, suprarenal artery, one of the lumbar arteries, common or internal iliac artery, and the inferior phrenic arteries. Variations of these arteries have been extensively studied due to their importance in testicular physiology. Moreover, this knowledge has a practical implication during testicular surgery. [3].To the best of our knowledge this kind of variation in the origin of left testicular artery from left external iliac artery has not been reported in the literature before.

Case presentation:
During routine dissection for undergraduate medical students at Department of Human Anatomy, Kasturba Medical College, Manipal University, Manipal, we observed an abnormal origin and course of the left side testicular artery in a 55-year-old male cadaver. On the left side, testicular artery arose from the external iliac artery half way before its entry into front of the thigh. Later it runs in the inguinal canal to reach the testis. In contrast, right side testicular artery and the testicular vein have normal origin and course. This anomalous left testicular artery had a diameter of 10 mm and a length of about 32 mm from its origin to its entry into the deep inguinal ring.

Discussion:
Anatomy of the gonadal arteries has assumed importance because of the development of new operative techniques within the abdominal cavity for operations such as varicocele and undescended testes [4]. During laparoscopic surgery of the male abdomen and pelvis many complications occurred due to unfamiliar anatomy in the operative field [5]. Awareness of variations in the testicular arteries, such as those presented in this case report, becomes important during such surgical procedures. Variant anatomy of gonadal arteries has been reported in number of cases. Anomalies in the origin, course, and

Keywords: Rare variation, Testicular artery, External iliac artery

- Huban Thomas R
number of Testicular Arteries were observed in 4.7 present of cases in a study of 150 cadavers [6]. There are few reports of a high Testicular Artery origin in the literature. Shinohara et al. found a Testicular Artery originating 1 cm superior to the origin of the inferior phrenic artery [7]. Brohi et al. described the case of a high origin of the left Testicular Artery which originated from the left renal artery [8]. Xue et al. found a right TA artery arising from the anterior surface of the abdominal aorta at the level of the left renal artery [9]. Shoja et al reported that the gonadal artery originated from the main or accessory renal artery [10]. Deepthinath et al reported a double left testicular artery, in which one originated from an accessory renal artery and the other from the main renal artery [11].

The first attempt at classification of Testicular Artery variations was made by Machnicki et al. [12]. Their study included TAs from both foetuses and adults grouped according to their origin from the aorta or renal artery. Four major types were observed: Type A - a single Testicular Artery originating from the aorta; Type B - a single Testicular Artery originating from the renal artery; Type C - two Testicular Arteries originating from the aorta that supplied the same gonad; Type D - two Testicular Arteries supplying the same gonad, one arising from the aorta and the other from the renal artery [12]. Some years later, Çiçekcibasi et al. classified the variations into four alternative types: Type I - Testicular Artery arising from the suprarenal artery; Type II - Testicular Artery originating from the renal artery; Type III - Testicular Artery of high-positional origin from the abdominal aorta, close to the renal artery lineage; Type IV - Testicular Artery duplication originating from the aorta or from various vessels [13]. Our case report is not matching with any of the above said classification and not been reported in the literature before.

Regarding the embryologic basis, explanation for individual or combined variations of renal and gonadal arteries has been related to the embryological development of both vessels from the lateral mesonephric branches of the dorsal aorta. The embryologic explanation of these variations has been presented and discussed by Felix. The developing mesonephros, metanephros, suprarenal glands and gonads are supplied by nine pairs of lateral mesonephric arteries arising from the dorsal aorta. Felix divided these arteries into three groups as follows: the 1st and 2nd arteries as the cranial; the 3rd to 5th arteries as the middle, and the 6th to 9th arteries as the caudal group. The middle group gives rise to the renal arteries. Persistence of more than one arteries of the middle group results as multiple renal arteries. Felix also stated that although anyone of these nine arteries may become the gonadal artery, it usually arises from the caudal group [14].

**Conclusion:**

Anatomical knowledge of Morphological anomalies of the gonadal arteries may be important not only for the clinical point of view but they also explain the embryological basis and some pathological conditions. The origin and course of the TA must be carefully identified and demarcated in order to preserve and prevent testicular atrophy. A deeper understanding of these variations and their special relations to adjacent vessels is especially significant in avoiding the complications in surgical and diagnostic interventions. Furthermore, radiologists should be familiar with TA variants in order to provide an accurate diagnosis during pre-clinical studies.

**Keywords:** Rare variation, Testicular artery, External iliac artery

- Huban Thomas R
Keywords: Rare variation, Testicular artery, External iliac artery

References:

A biologic and functional approach to restorative dentistry is essential for the satisfactory performance and fulfillment of those requisites basic to Prosthodontics. Accordingly, the masticatory organ must be considered as a functional, consolidated unit, with proper attention being directed to all the elements that comprise this unit. All functional factors are interrelated, and proper regard for each aspect is essential, if the restoration and maintenance of the health of the entire functioning mechanism is to be a realization.

Amelogenesis imperfecta (AI) has been defined as a group of hereditary enamel defects not associated with evidence of systemic disease. Restoration for patients with this condition should be oriented toward the functional and esthetic rehabilitation and the protection of these teeth. The specific objectives of the treatment were to enhance esthetics, eliminate tooth sensitivity and restore masticatory function. Management of a patient with skeletal class III malocclusion and Amelogenesis Imperfecta is a challenge for the clinician. Surgical correction of the skeletal class III malocclusion, orthodontic therapy followed by full mouth rehabilitation as a multidisciplinary approach is vital for the functional rehabilitation of the patient.

Keywords: Amelogenesis imperfecta, orthognathic surgery, orthodontic therapy, full mouth rehabilitation.

Introduction:
A biologic and functional approach to restorative dentistry is essential for the satisfactory performance and fulfillment of those requisites basic to Prosthodontics. Accordingly, the masticatory organ must be considered as a functional, consolidated unit, with proper attention being directed to all the elements that comprise this unit. All functional factors are interrelated, and proper regard for each aspect is essential, if the restoration and maintenance of the health of the entire functioning mechanism is to be a realization.

Amelogenesis imperfecta (AI) has been defined as a complex group of hereditary enamel defects not associated with evidence of systemic disease affecting both primary and permanent dentitions. It is a rare enamel mineralization defect described by Spokes in 1890 as "hereditary brown teeth" with a reported incidence of 1:14,000. Other associated findings in patients with AI include delayed eruption of teeth, taurodontism, congenitally missing teeth, crown and root resorption, and pulp calcification.

Clinical report:
An 18 year old male patient presented with poor esthetics, gap between upper and lower teeth; and poor masticatory efficiency. Patient exhibited a concave facial profile with a skeletal class III malocclusion, mandibular prognathism with increased anterior facial height. On intra oral examination, dark yellowish discoloration of all teeth, open proximal contacts and esthetic disharmonies with open bite from first molar to first molar with occlusal contacts only at second molar was revealed (Figure 1). A panoramic radiographic examination of the teeth revealed generalized defective enamel on all the teeth. A lateral cephalogram revealed a class III skeletal malocclusion with skeletal open bite with prognathic mandible, increased mandibular plane and increased lower anterior face height.
A methodical multidisciplinary approach was planned for the oral rehabilitation of the patient starting with orthodontic alignment, surgical correction of jaw relationship and finally prosthodontic rehabilitation to restore both function and esthetics. The detailed treatment plan and the possible outcome were explained to the patient and informed consent was obtained before the treatment procedures.

Orthognathic surgery was performed as bilateral sagittal split osteotomy [BSSO] with mandibular set back and upward rotation for correction of open bite as well as prognathic mandible. Presurgical orthodontics with 0.022” preadjusted edgewise appliance [Roth system] for pre surgical alignment and space closure were carried out. A month after the orthognathic surgery, post-surgical orthodontics was begun for minor occlusal corrections (Figure 3,4). Perfect occlusal relationship was not established as the case was required to undergo full mouth rehabilitation.

The patient was now ready for prosthodontic rehabilitation. Maxillary and mandibular complete-arch impressions were made using irreversible hydrocolloid (Zelgan, Dentsply, Gurgaon, India) impression material. Diagnostic casts were fabricated from Type-III dental stone (Kalstone, Kalabhai private limited, Mumbai, India). The opening axis of the mandible was determined by face bow transfer and mounted on a Whipmix semiadjustable articulator [Whip Mix Articulator; Whip MixCorp; Louisville, Ky]. Bite registration using Type II modeling wax (Hyderabad Dental Products, Hyderabad, India) was made at the orthodontically established maximum intercuspation.

One of the most common method for establishing an acceptable plane of occlusion is indirect analysis using the Pankey-Mann-Schuyler (PMS) method with the Broderick occlusal plane analyzer (BOPA). When it has been determined that restoration of all or most of the posterior teeth is necessary, the PMS technique using BOPA provides a simple and practical method to determining the preliminary occlusal plane on diagnostic casts. Hence BOPA was used as a guide for determining an acceptable plane of occlusion and the reduction required for each tooth preparation. Diagnostic preparations were made on the stone casts, and a diagnostic waxup was completed with a canine guided concept of occlusion design (Figure 5). Tooth reduction guides and heat processed acrylic resin provisional restorations were fabricated from the diagnostic wax-up.

Tooth preparation and restoration with porcelain fused to metal crowns was done in a sequential manner, starting with the mandibular anteriors, followed by the maxillary anteriors, mandibular posteriors and finally the maxillary posteriors following the PMS philosophy of occlusal rehabilitation. The anterior guidance was established based on esthetics, phonetics and development of a canine guided occlusion. Soft tissue was retracted using knitted cord [UltraPak, Ultradent products, south Jordan, Utah] with aluminium sulfate hemostatic agent[Gelcord, Pascal Co Inc, Bellevue, Wa], and complete arch impressions were made with the addition polymerization silicone impression material[Express ™ 3M ESPE]. Wax patterns were completed to the contour of the final restorations, and the wax patterns for the teeth receiving porcelain-fused-to-metal restorations were cut back approximately 1 mm to allow for the porcelain addition. All occlusal surfaces were planned to be fabricated in metal. The wax patterns were invested in a phosphate bonded investment, and cast. Porcelain shade Vita B2 was applied to the metal-ceramic castings. All the restorations were characterized, glazed, and polished, and luted with glass ionomer cement (Figure 6). The esthetics and functional efficiency has improved drastically after the rehabilitation (Figure 7,8).

Complete mouth rehabilitation is a dynamic functional problem, and embodies the correlation and integration of all component parts into one functioning unit. The aim and endeavor, therefore, must be reconstruction and rehabilitation of the whole, satisfying all the related factors. The science of complete mouth rehabilitation rests upon three proved and accepted fundamentals: namely, the existence of a physiologic rest position of the mandible,
Keywords: Amelogenesis imperfecta, orthognathic surgery, orthodontic therapy, full mouth rehabilitation. - Krishna Prasad D

The clinical features of amelogenesis imperfecta compounded with a skeletal class III malocclusion presented special challenges to the treatment team. Though the treatment planning was complicated, the diagnostic wax-up demonstrated that full-arch restorative treatment could be accomplished, and without unfavorable stresses caused by the arch malrelations. Careful technique and very close follow-up are required to maintain occlusal stability when restoring arch discrepancies. The planned occlusal relations were tested in the mouth with the acrylic resin provisional restorations, and were found satisfactory by the patient as to esthetics, phonetics, and function.

Discussion:
Complete mouth rehabilitation is a dynamic functional problem, and embodies the correlation and integration of all component parts into one functioning unit. The aim and endeavor, therefore, must be reconstruction and rehabilitation of the whole, satisfying all the related factors. The science of complete mouth rehabilitation rests upon three proved and accepted fundamentals: namely, the existence of a physiologic rest position of the mandible, which is a constant; the recognition of a vertical dimension; and, finally, the acceptance of a dynamic, functional centric occlusion.
The clinical features of amelogenesis imperfecta compounded with a skeletal class III malocclusion presented special challenges to the treatment team. Though the treatment planning was complicated, the diagnostic wax-up demonstrated that full-arch restorative treatment could be accomplished, and without unfavorable stresses caused by the arch malrelations. Careful technique and very close follow-up are required to maintain occlusal stability when restoring arch discrepancies. The planned occlusal relations were tested in the mouth with the acrylic resin provisional restorations, and were found satisfactory by the patient as to esthetics, phonetics, and function.

**Conclusion:**
The procedure explained in this clinical report is an organized way to rehabilitate the lost occlusion. An advanced restorative treatment plan involving the reorganization of the patient’s occlusion is a major challenge for the restorative team. Successful completion will depend upon:

1. An accurate record of the patient’s pre-treatment occlusion.
2. A clear idea of the occlusion of the definitive restoration, including the jaw relationship at which it is to occur.
3. A detailed sequential plan and the execution of treatment from the pre-treatment phase until the final rehabilitation.

A multidisciplinary sequential approach with pre surgical orthodontic alignment followed by planned orthognathic surgery and subsequent post surgical orthodontic alignment and occlusal corrections and further Prostodontic treatment approach ensured a successful esthetic and functional rehabilitation.

**References:**
**DOUBLE SUPERIOR VENA CAVA AND ITS ASSOCIATED CLINICAL IMPLICATIONS - A CASE REPORT AND LITERATURE REVIEW**

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**Abstract:**

Abnormalities of the vascular system are always of extreme interest due to its importance in circulation. Normally the superior vena cava is a single vascular structure formed by the union of right and left brachiocephalic veins which are in turn formed by the union of corresponding internal jugular and subclavian veins, draining the head and neck as well as the superior extremity. However during routine dissection in the Department of Anatomy, Kasturba Medical College, Manipal, we came across a case of double superior vena cava with persistent left superior vena cava in a 58-year-old male cadaver. Both the vena cavae were formed as continuations of brachiocephalic veins of the corresponding side. The persistent left superior vena cava opened into the enlarged coronary sinus that drained into the right atrium between the opening of inferior venacava and right atrioventricular orifice. No communication was observed between the two vena cavae. A persistent left superior vena cava does not by itself produce any physiological derangement. But it has important clinical implications in certain clinical interventions. It may complicate placement of cardiac catheters or pacemaker leads. Awareness of this anomaly may therefore reduce confusions and thus would help to avoid further complications.

**Keywords:** persistent left superior vena cava, coronary sinus, superior vena cava, right atrium

**Introduction:**

Abnormalities in the cardio-vascular system are of extreme interest because of their significance in different developmental problems and their effect on the organ of circulation.

Normal anatomy describes the formation of a single superior venacava by the union of right and left brachiocephalic veins which are in turn formed by the union of corresponding internal jugular and subclavian veins, draining the head and neck as well as the superior extremity.

Malformations such as atrial septal defect, ventricular septal defect or endocardial cushion defect. Presence of PLSVC may also interfere and cause problems during various invasive procedures such as pacemaker implantation, central venous catheterisation, retrograde delivery of cardioplegia and retrograde left ventricular pacing. The present case reports the existence of one such anomalous PLSVC in an adult cadaver.

**Case Report:**

During routine dissection in the department of Anatomy, Kasturba Medical College, Manipal, we came across a case of double superior vena cava with persistent left superior vena cava (PLSVC) in a 65-year-old male cadaver. Both the vena cavae were formed as continuations of brachiocephalic veins of the corresponding sides. The PLSVC had the same length and caliber compared to the superior vena cava (Figure 1). When traced, it opened into the enlarged coronary sinus that further drained into the right atrium between the opening of inferior venacava and...
right atrioventricular orifice (Figure 2). There was no communication between the two vena cavae (Figure 1). The hemiazygos and accessory hemiazygos veins drained normally into the azygos vein which in turn drained into the right superior vena cava. No other associated variations were observed.

Figure 1: Showing persistent left superior vena cava (PLSVC). Both the vena cavae (SVC & PLSVC) were formed as continuations of brachiocephalic veins of the corresponding side. No communication was observed between the two veins. SVC: Superior vena cava, RA: Right auricle.

Figure 2: Showing the persistent left superior vena cava (PLSVC) opening into the enlarged coronary sinus that drains into the right atrium between the opening of inferior vena cava and right atrioventricular orifice.

Discussion:
Double superior vena cava with a PLSVC is a rare anomaly. It is estimated to exist in 0.3-0.5% of the general population and 3-10% of patients with other forms of congenital heart disease. It is a remnant of a vessel which persists as an embryological counterpart of the normal right-sided superior vena cava.

During the fifth week of intrauterine life, in the human fetus, three pairs of major veins can be distinguished: the vitelline veins, carrying blood from the yolk sac to the sinus venosus; the umbilical veins, originating in the chorionic villi and carrying oxygenated blood to the embryo; and the cardinal veins, draining the body of the embryo proper. The cardinal veins form the main venous drainage system of the embryo. This system consists of the anterior cardinal veins, which drain the cephalic part of the embryo, and the posterior cardinal veins, draining the remaining part of the body of the embryo. The anterior and posterior veins join to form common cardinal veins and enter the right and left horns of the sinus venosus. Formation of the vena cava system is characterized by the appearance of anastomoses between the left and right sides in such a manner that the blood from the left side is directed to the right side. The anastomosis between the anterior cardinal veins develops into the left brachiocephalic vein. Most of the blood from the left side of the head and the left upper extremity is thus directed to the right. The terminal portion of the left anterior cardinal vein entering into the left brachiocephalic vein is retained as the left superior intercostal vein. The superior vena cava is thus formed by the right common cardinal vein and the proximal portion of the right anterior cardinal vein. On the other hand, the left common cardinal vein and the distal part of the left horn become atretic and forms the ligament of Marshall or ligament of the left superior vena cava. If this normal regression of the left cardinal vein fails to occur, it results in a PLSVC.

Reports have stated the variations and abnormalities related to double superior vena cava. The most common thoracic venous abnormality is the LPSVC draining into the coronary sinus in the presence of both left and right superior vena cavae. This anomaly is usually asymptomatic and does not require treatment unless accompanied by other cardiac anomalies. A bridging innominate vein is usually observed in these cases.
However, in the present case, a double SVC with a PLSVC was observed and there was no communication between the two superior vena cavae unlike as reported previously.

Rarely, the left SVC may also drain into the left atrium as a result of arterial desaturation.  

This anomaly was observed in approximately 7.5% of cases of LPSVC, and it results in a small right to left shunt. This has a minor haemodynamic effect, mainly a variable degree of systemic cyanosis and may lead to clinical symptoms.

The left SVC has also been reported to be identifiable in the fetus and be accompanied by coarctation and arch hypoplasia.

PLSVC may also give rise to rhythm disturbances such as sinus node dysfunction and atrioventricular block. These rhythm problems may be related to the stretching of the conduction tissue caused by the enlargement of the coronary sinus. It may also be associated with other malformations such as situs inversus or tetralogy of Fallot.

Detailed and accurate echocardiographic studies is therefore useful in identifying this rare congenital defect, thus avoiding further complications during invasive procedures such as cardiac pacemaker implantation, resynchronization therapy, radiofrequency catheter ablation, internal jugular or subclavian vein catheter insertion.

During cardiac surgery, the presence of PLSVC would be a relative contraindication to the administration of retrograde cardioplegia. It may be possible to clamp the PLSVC to avoid the cardioplegia solution from perfusing retrograde up the PLSVC and its tributaries. However, there is a possibility that there may be some steal of cardioplegia solution through an accessory vein. Further, the coronary sinus catheter balloon may not be able to occlude the dilated coronary sinus. This may result in the failure of flow of cardioplegia solution to the myocardium. Thus, the cardioplegia solution administered would largely be distributed to the left internal jugular and left subclavian veins, rather than the myocardium.

If the right superior vena cava is absent, all venous return from the upper body will drain through the LPSVC. Hence, this may affect the use of the retrograde cardioplegia. In such a case, occlusion or ligation of the LPSVC would be fatal as this may result in cerebral congestion.

During heart transplantation in a patient with PLSVC, the coronary sinus must be dissected carefully to permit re-anastomosis of PLSVC to right atrium. Therefore, both surgeons and perfusionists should be aware of the anatomy of PLSVC and its associated intraoperative complications.

CT or MRI is an important non-invasive diagnostic tool for accurate diagnosis of this rare congenital venous malformation. The left SVC opening to the right atrium through the coronary sinus can be clearly shown by MPR and 3D VR obtained through MDCT as indicated by Onbas et al.

Double SVC is a rare congenital anomaly and is sparsely available in the medical literature. Therefore both clinicians and sonographers should be alerted about the possible existence of this venous anomaly, other cardiac abnormalities associated with it and their clinical consequences so as to prevent possible complications in routine clinical practice and during cardiopulmonary bypass. The present case report adds to the existing knowledge of these congenital abnormalities and stresses on the use of different diagnostic techniques for its accurate diagnosis thereby avoiding further complications while planning different interventions.

Acknowledgements:
We are grateful to the cadaver donors who have voluntarily donated the same for the purpose of medical research.

Keywords: persistent left superior vena cava, coronary sinus, superior vena cava, right atrium - Mamatha H
Keywords: persistent left superior vena cava, coronary sinus, superior vena cava, right atrium - Mamatha H

References:

Introduction:
Injuries to the head and neck are more common, accounts for more than 70% of road traffic accidents. Of the 613 maxillofacial injury patients treated in the casualty of KSHEMA hospital, Mangalore (2010-2011), 542 patients sustained soft-tissue injuries. Facial soft tissue injuries vary in severity based on the impact force and type of injury into minor superficial wounds to massive avulsions.

Classification of wound:
Centers for Disease Control & Prevention (CDC) 1999
- CLEAN – 75% of surgical wound
- CLEAN CONTAMINATED
- CONTAMINATED
- DIRTY/ INFECTED

The aim of managing such complex injury is to achieve functional and aesthetic recovery in the shortest time period. The operating surgeon should understand the biomechanics and molecular biology of wound healing and the art of soft tissue repair. Management of complex soft tissue injuries are always a challenge to the surgeons.

Case Series:
Here we present a series of 3 road traffic accident cases who reported to our department with facial soft tissue injury.
Case 1:
A 21 year old male patient reported with severe laceration soft tissue injury of upper and lower lip following a bike accident.

Wound debridement done with hydrogen peroxide and povidone – iodine followed by thorough irrigation with normal saline. Suturing was done in layers. Subcutaneous layer, orbicularis oris muscle layer closed with 4-0 vicryl and skin with 4-0 prolene.

Post operative day 4: patient reported with a complaint of discoloration of lower lip. Patient was placed under observation. On day 7 sutures were removed and the avulsed necrosed portion of soft tissue was removed.

Case 2:
A 50 year old male patient reported with lacerated nasal soft tissue injury caused due to a cut by a glass piece. Patient reported to the department after 9 hours of injury. Blackish discolouration of the soft tissue noted and patient was explained the complications.

Suturing was done with 5-0 prolene and patient was on regular follow up.

On alternative days chlorhexidine acetate dressing was changed and the area was kept moist. Wound was allowed to heal by secondary intention.
Case 3:
A 45 year old woman reported with severe soft tissue injury of mid maxillary region following a fall. Wound was debrided and suturing done in layers with 4-0 ethilon.

Post operative day 2 necrosis of the soft tissue noticed. Daily change of bactigras (chlorhexidine acetate) dressing was done as we planned for a wait and watch. On post operative day 3 dehiscence of the wound noted in the both right and left commisure of the lip. Barrel bandage placed and patient was advised to restrict the mouth opening. On day 4 collagen membrane suturing was done to act as a scaffold for the wound. Patient is currently on regular follow up.

Discussion:
Facial soft tissue is more common since the incidence of road traffic accidents is very high. Facial soft tissue injury is given maximum attention because the management is based on both aesthetic and functional aspect. Necrosis of the soft tissue is one of the major complications of deep or massive soft tissue injury. Since orofacial region has numerous blood supplies from branches of facial artery, the end result of treatment is most often positive.
Clinical evaluation should be carried out under adequate light source, copious irrigation and hemostasis. Horizontal injury across the facial region is less likely to damage the facial nerve than the vertical injuries. Ideally facial wounds without additional injuries should be repaired as soon as possible. In major trauma requiring the resuscitative measures, the wound can be managed after 4 - 6 hours. (3)

Local anaesthetics without adrenaline are preferred in such injuries to avoid vasoconstriction which compromises the blood supply to injured area. According to the literature hydrogen peroxide and povidone - iodine should be avoided in fresh wounds since they impede with healing process. The author has quoted that non-ionic detergent minimises inflammatory response. (4) Irrigation removes enough bacteria if used with 7 pounds of pressure per square inch. This pressure is generated by forcefully expressing saline from 35 ml syringe with 18 gauge needle. (4)

Regeneration of cells occurs from stratum germinatum or basal layer in the epidermis. Regeneration of cells on the face results from both basal layer and epidermal pegs. Epidermal pegs are numerous in the face and hence significant portion of epidermal layer can be removed without scarring.

Wounds in the face should be closed in layers to attain anatomic alignment and to avoid dead space. The most common reasons for suture scar or suture mark is closing the wounds under tension and delayed removal. Ideally facial sutures should be removed between post operative days 4 to 6. Pressure dressing should be avoided in devitalised tissues to prevent anaerobic infection. (3)

Topical antibiotic ointment for post operative use should be discontinued after 7 days to prevent tissue reaction. (6)

Following are the timings for removal of sutures based on different areas of head and neck,

- Face / ear – 4 to 6 days
- Scalp – 6 to 8 days
- Eyelid – 3 to 5 days
- Neck – 5 to 7 days.

Conclusion: Successful treatment of the patient with orofacial soft tissue injury requires regular follow up to ensure proper healing of the wound, in order to prevent functional & esthetic facial derangement. The surgeon should be familiar with the anatomy of the facial structures, various treatment modalities and should closely monitor the patient until optimal healing of the soft tissue had occurred in order to prevent scar formation.

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Case report:
A 35 year old male patient reported to the department of periodontics, A B Shetty Memorial Institute of Dental, Sciences Mangalore with a chief complaint of swelling and discomfort in the inner side of lower anterior teeth since one month. The swelling which was gradual in progression, associated with pain and bleeding on trauma while eating or brushing. He gave a history of recurrence three times in the last one month at the same site. He gave history of a similar lesion 4 days back at the same site for which the patient had undergone surgical excision.

On clinical examination, a localised gingival swelling pink to red in colour measuring 1 cm X 0.75 cm was present with respect to lingual aspect of left mandibular central incisor which was bleeding on probing that area. The growth was firm on palpation, non-tender with absence of discharge. Physical examination revealed no cervical lymphadenopathy or any other abnormality. On hard tissue examination there was no trauma form occlusion no mobility detected. There was moderate supragingival and sub gingival calculus present in that tooth. Patient presented no relevant medical history. The periapical radiograph showed no detectable bony defect. Based on the history, clinical and radiographic features a provisional diagnosis of pyogenic granuloma was made and the lesion was planned for excisional biopsy under local anesthesia.

First a thorough conventional non-surgical full mouth scaling and root planning was performed with curettes. There was moderate bleeding which could be controlled within a few minutes on applying pressure with gauze. After local anesthesia, with the help of a 15 no. BP blade the lesion was excised completely by trimming the remnants of soft tissue to prevent recurrence of the lesion. Antibiotics and analgesics were prescribed for 1 week. The excised tissue was then sent in formalin for histopathological examination.

Histopathological examination of H and E stained sections show epithelium and connective tissue. Epithelium is parakeratinized stratified squamous type. The connective tissue shows numerous blood vessels, chronic inflammatory cells like lymphocytes and plasma cells. Extravasated RBCs were also seen. The histopathological examination confirmed the clinical diagnosis of pyogenic granuloma. The patient was recalled after a week and the excised area was evaluated. Healing was satisfactory.
Pyogenic granuloma, a non-specific conditioned enlargement is a tumour like gingival enlargement that is considered as an exaggerated conditioned response to minor trauma. The lesion varies from a discrete spherical, tumor like mass with a pedunculated attachment to a flattened, keloidlike enlargement with a broad base. It is bright red or purple and either friable to firm, depending on its duration. In majority of cases it presents with ulceration and purulent exudation. The lesion tends to involute spontaneously to become a fibroepithelial papilloma, or may persist relatively unchanged for years.

In 1897, Poncet and Dor first brought the matter to the attention of the surgeons in France under the name of "Botryomycoma hominis". Hartzell in 1904 gave the term "pyogenic granuloma" or "granuloma pyogenicum". Angelopoulos histologically described it as "hemangiomatous granuloma" due to the presence of numerous blood vessels seen in histological section. Two forms of pyogenic granulomas were described, the lobular capillary hemangioma (LCH) and the non-lobular capillary hemangioma (non-LCH).

Pyogenic granuloma is a commonly occurring inflammatory hyperplasia of the skin and oral mucosa. Pyogenic granuloma is the most common lesion constituting upto 57% of all cases of focal reactive gingival lesions. The female: male ratio is 1.7:1. Females are more susceptible than males because of the hormonal changes that occur in women during puberty, pregnancy and menopause. Most of the lesions, upto 51.6% occurred in the incisor/canine region. Pyogenic granuloma occurs in all ages with a peak incidence of 2nd and 3rd decades of life. It is not associated with pus as its name suggests and histologically it resembles an angiomatous lesion rather than a granulomatous lesion. It is known by a variety of names such as Crocker and Hartzell's disease, granuloma pyogenicum, granuloma pediculatum benignum, benign vascular tumour and during pregnancy as granuloma gravidarum. This tumour like growth is considered to be non-neoplastic in nature and it presents itself in the oral cavity in various clinical and histological forms.

Various causes like chronic low grade trauma, physical trauma, hormonal factors, bacteria, viruses and certain drugs have been implicated as causative factors in the
development of pyogenic granulomas. Oral pyogenic granulomas show a predilection for the gingiva, accounting for 75% of the cases. Local irritants such as calculus, foreign material in the gingiva and poor oral hygiene are the precipitating factors. Studies have shown that pyogenic granuloma as a hyperplastic, neovascular response to an angiogenic stimulus with imbalance of promoters and inhibitors. Angiogenic growth factors such as vascular endothelial growth factors (VEGF) and decorin, transcription factors (PATF 2 and Pstat3) and signal transduction pathways (MAPK) are overexpressed in pyogenic granulomas.

The result is the exuberant production of granulation tissue producing a dark red or purplish polypoid mass extending from the gingival crevice. The surface is usually smooth but, because of its location, there is normally some surface ulceration with a fibrinous covering.

Radiographic findings are usually absent. However, Angelopoulos concluded that in some cases long standing gingival pyogenic granulomas caused localized alveolar bone resorption. Excision and biopsy of the lesion is the recommended line of treatment unless it would produce a marked deformity and in such a case incisional biopsy is recommended. Conservative surgical excision of the lesion with removal of irritants such as plaque, calculus and foreign materials is recommended for small painless non-bleeding lesions. Excision of the gingival lesions up to the periosteum with thorough scaling and root planning of adjacent teeth to remove all visible sources of irritation is recommended. Various other treatment modalities such as use of Nd: YAG laser, carbon dioxide laser, flash lamp pulse dye laser, cryosurgery, electrodessication, sodium tetradecyl sulfate sclerotherapy and use of intralesional steroids have been used by various clinicians. The treatment of pyogenic granuloma consists of removal of the lesion with the elimination of irritating local factors. The recurrence rate is about 15%. Taira et al., have shown a recurrence rate of 16% in excised lesions and also described a case of multiple deep satellite lesions surrounding the original excised lesion in a case of Warner Wilson James syndrome.

Bachymeyer et al and Lee et al reported four cases of oral pyogenic granuloma in chronic graft-versus-host disease in patients who were under cyclospoprin. Fowler et al first reported a case in which pyogenic granuloma was found associated with GTR. Differential diagnosis includes peripheral giant cell granuloma, peripheral ossifying fibroma, metastatic cancer, hemangioma, pregnancy tumour, conventional granulation tissue, hyperplastic gingival inflammation, Kaposi’s sarcoma, bacillary angiomatosis and Non-Hodgkins lymphoma.

In the case presented here, the patient gave a previous history of recurrence of similar lesion within 4 days of surgical removal. On clinical examination, moderate supragingival and subgingival calculus was detected. Hence the presence of the local factors could be the reason for the lesion to recur. So a thorough scaling and root planning was performed before the surgical excision of the lesion. Satisfactory healing was seen after 1 week of surgery without any sign of recurrence and patient discomfort. There was no recurrence seen after 1 month of follow up.

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Case Report

VARIATION IN THE STRUCTURE OF LEVATOR GLANDULAE THYROIDEA – A CASE REPORT

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Abstract:
The thyroid gland is an important and easily approachable endocrine gland, situated in the lower part of anterior aspect of neck. The Levator glandulae thyroidea (LGT) is a fibro-musculo-glandular band. It is usually present on the left side connecting the pyramidal lobe of thyroid gland to the hyoid bone. During the routine dissection of neck it was observed that the LGT was present on the right side of midline of neck extending from pyramidal lobe of the right side of isthmus of thyroid gland to the inferior border of hyoid bone. It was muscular throughout with 6.5cm in length, 1.5cm breadth and 1.75mm in its thickness. This is a rare variation in the morphology and situation of LGT observed for the first time. The presence of LGT and its anatomical variations gain importance in the pathologies related to thyroid gland and their treatment modalities.

Keywords: Isthmus, Thyroid gland, Levator glandulae thyroidea, Morphology.

Background:
The thyroid gland is the largest endocrine gland in the body. It is an important and easily approachable endocrine gland, situated in the lower part of anterior aspect of neck. It is a horseshoe-shaped mass clasping the upper part of the trachea. The thyroid gland consists of two symmetrical lobes united by an isthmus, lies in front of the second, third and fourth tracheal ring. A pyramidal lobe of variable size may be present extending from the isthmus or from the junction of the isthmus and one of the lateral lobes (usually the left) and connected to the thyroid cartilage and hyoid bone¹,². There may be in addition to the pyramidal lobe, a fibromuscular band known as the levator glandulae thyroidea (LGT) which usually replace the upper part of the pyramidal lobe. The LGT is a fibro-musculo-glandular band. It is usually present on the left side connecting the pyramidal lobe of thyroid gland to the hyoid bone. The presence of LGT and its anatomical variations gain importance in the pathologies related to thyroid gland and their treatment modalities¹,³,⁴. This case has been presented here to report one of such variations which has got a good clinical significance.

Case Report:
During the routine dissection of neck in an elderly male cadaver, it was observed LGT on the right side of the midline of neck extending from isthmus of thyroid gland to inferior border of hyoid bone. It was muscular throughout with 6.5cm in length, 1.5cm breadth and 1.75mm in its thickness. Initially the skin, superficial fascia and investing layer of deep fascia were carefully reflected and the isthmus was identified lying at the level of 2th tracheal ring. The pyramidal lobe was situated on the right side of the midline along the upper border of the isthmus of thyroid gland. The sternohyoid muscle was identified and reflected above to its proximal attachment to hyoid bone on both right and left side and LGT was situated on right side. The course of the LGT was carefully dissected. The connective tissue septum was found separating it from overlying sternohyoid and superior belly of omohyoid muscles.
Sternothyroid was found separately on the lateral side. A small branch from nerve to omohyoid was found to be supplying the LGT. On the left side neither pyramidal lobe nor the LGT was found. The anastomosis between the branches of right and left superior thyroid arteries along the superior border of isthmus was noted.

**Figure 1:** Muscular levator glandulae thyroidea (LGT) situated on the right side of midline of the neck extending from pyramidal lobe of thyroid gland to lower border of hyoid bone.

**Discussion:**
According to Standring, the LGT extends from the pyramidal lobe or the upper border of the isthmus usually on the left side, to the body of hyoid bone above. According to S.D. Joshi et al, the LGT was present in 27 (30%) cases. The LGT was attached to hyoid bone in 18 (66.66%) instances. It was attached to the upper border of thyroid cartilage in 14 (14.81%) and to the lower border of the thyroid cartilage in 5 (18.51%) cases. Harjeet et al. described it in 94 (22.9%) cases in males and 17 (10.6%) cases in females. They described it as extending caudally from the body of the hyoid in 53.2% of males and in 52.9% of females, in 10.8% from the median thyroid ligament, and from the lower border of the lamina of the thyroid in 34.04%. Marshall found LGT attached to the hyoid bone in 17 (28.3%) cases, and in 9 cases it merged with the fascia covering the thyroid cartilage. Faysal et al. observed an unusual case in which LGT extended from the apex of the mastoid process. Enayetullah found LGT in 32% cases and its association with pyramidal lobe in 22% cases. In most cases LGT were associated with pyramidal lobe and most of the pyramidal lobes were situated on the left side.

Gunapriya et al., reported a case of presence of LGT with absence of pyramidal lobe on the right side, which stretched from the upper border of isthmus of thyroid gland, to the lower border of the lamina of thyroid cartilage, which measured 1 cm in length and 0.6 cm in breadth. Sreekant Tallapaneni et al., observed that the LGT was arising from the upper part of anterior border of the thyroid cartilage and got inserted into the substance of the right lobe along the lower 2/3rd of its anterior border with the agenesis of the isthmus.

**Conclusion:**
Though previously many authors have mentioned about the presence of LGT and its variations, the present case is a rare one. This study signifies the need for thorough understanding and the knowledge of anatomy of thyroid gland and its associated variations.

**References:**
Autoimmune hemolytic anemia (AIHA) is rare clinical disorder and requires efficient immunohematological and transfusion support. We report two cases of Immune hemolytic anemia. A case of AIHA in congestive cardiac failure and second a known case of Giant cell arteritis with cold antibodies. Both the cases we encountered problems during cross matching.

Keywords: AIHA, Blood transfusion, direct antiglobulin test, autoantibodies

Introduction:
Immune hemolysis is a shortening of red blood cell survival due directly or indirectly to antibodies. [1] It is necessary to identify these irregular antibodies in patient serum in order to select appropriate blood for transfusion. Even in the most vexing situation encountered, even when no compatible blood units are available for patient with severe anemia, transfusion should not be denied.

Case 1:
A 15 years old female presented with complaints of cough of one month duration associated with fever and vomiting of two weeks duration. On examination there was tachycardia, severe pallor with icterus. Systemic examination showed firm hepatomegaly and splenomegaly. Complete hemogram revealed markedly reduced haemoglobin (2.9gm/dl), ESR was raised (160mm/hr), low platelet count and high red cell indices. Reticulocyte count was 6% and negative for malarial parasite. Blood smear showed haemolytic anaemia with thrombocytopenia. Bone marrow examination revealed erythroid hyperplasia. Liver function test showed high bilirubin levels. ANA and dsDNA were within normal range. A Vitamin B12 level was reduced. Direct coombs test was strongly positive with polyspecific AHG plus monoclonal C3d. Diagnosis of autoimmune haemolytic anaemia with congestive cardiac failure was made. Transfusion was requested but cross match was incompatible. Two units of least incompatible (best matched) packed red cells were transfused. Her haemoglobin was raised to 8.8gm/dl during her hospital stay. Her clinical condition improved and she was discharged with an advice to follow up.

Case 2:
A 56 years old female was referred to our hospital with complaints of giddiness of one month duration and history of transient loss of vision mainly in the right eye. She had similar complaint one year back and was diagnosed as a case of Giant cell arteritis and was treated with steroids. On general physical examination there was pallor and mild pedal oedema. Systemic examination within normal limits. Hematological examination revealed moderate anemia (Hemoglobin - 6.3gm/dl), markedly elevated ESR (135mm/hr) and reticulocyte count of 10%. Peripheral blood smear showed agglutination of red cells, polychromasia, and anemia. Erythroid hyperplasia was
noted in bone marrow. Blood urea, creatinine, and liver function tests were within normal limits. ANA and anti-ds DNA were within normal reference range. The patient’s sample was received in the blood bank for cross matching. Cell and serum grouping showed discrepancy. Patient was typed as O Rh positive. Direct antiglobulin test with polyspecific AHG plus monoclonal anti C3d was strongly positive. Blood transfusion was requested and cross match was incompatible. One unit of O positive least incompatible packed red cell was transfused without any adverse reactions. Biopsy of superficial temporal artery showed features consistent with Arteritis. Her clinical condition improved and she was discharged from hospital.

Discussion:
Autoimmune haemolytic anemia (AIHA) is rare. Correct diagnosis is dependent on proper comprehension of the pathophysiology and laboratory tests performed by the transfusion laboratory. [3]

Warm autoantibodies are responsible for 48 -70% of AIHA cases. [1, 2, 4, 5] Positive direct antiglobulin test may be the first serological evidence. Anemia is of variable severity and some patients present with fulminant hemolysis, jaundice, pallor, hemoglobinuria and hepatosplenomegaly. [3, 6]

In the first case, patient presented with severe anaemia, jaundice, mild hepatosplenomegaly and evidence of hemolysis. The direct coombs test was positive. Our patient had received "least incompatible" transfusion, due to severe anaemia with imminent clinical deterioration. When decision to transfuse mismatched blood is taken, transfusion of small aliquots to provide relief of symptoms and avoid fluid overload has been recommended. [2, 7] Leukoreduced blood products and premedication with antihistamines and antipyretics to prevent febrile and allergic reactions are recommended in patients with multiple antibodies. [2, 8]

The second patient was a rare case of Giant cell arteritis, with cold antibodies presented with history of giddiness and transient loss of vision, high ESR, low haemoglobin, evidence of hemolysis in blood smear and autoagglutination. The occurrence of cold antibodies in arteritis suggest disordered plasmaprotein metabolism and a relationship to certain condition in which dysglobulinaemia occurs: polyarteritis nodosa, rheumatoid arthritis, rheumatic fever and lupus erythematosus.[9] Instances of Giant cell arteritis have shown disorders of plasma protein metabolism. Small and Gavrilens (1963) found elevated alpha 2 glycoprotein with marked elevation of alpha 2 globulins and slight elevation of gamma globulins. [9] These abnormalities were corrected by adrenal steroid therapy. Whitfield, Meynell, Fessy and Hudson (1962) described a patient with Giant cell arteritis in who there was circulating factor VIII inhibitor which disappeared on steroid therapy. [9] Further, elucidation of the relationship of various forms of vasculitis to the dysglobulinaemias may appear with more complete plasma protein analysis in patients with these disorders. [9]

In context to Indian scenario Das et al opined that decision to transfuse in AIHA should be based on the clinical condition of the patient.[1,10] No critical patient should be denied blood transfusion due to serologic incompatibility.[1] Transfusion must be performed under control of vital parameters, such as cardiac function (ECG), renal function and diuresis. If there is no vital indication for transfusion it is prudent to wait for the results of immunohematological tests and ensuing transfusion advice based on this. [3]

Corticosteroid therapy is the mainstay of treatment in AIHA. Transfusion is of transient benefit but may be required initially because of severity of anaemia. Transfusion of red cells in AIHA can be complicated because of cross matching problems and rapid in vivo destruction of transfused cells due to the presence of autoantibodies. [11-14] Immunosuppressive agents including monoclonal anti-CD20 (Rituximab) may prove useful in AIHA. Splenectomy is of benefit in refractory cases. [11]

In conclusion, a good communication must be established between the clinician and the transfusion specialist to assess the clinical urgency and the complexity of the
serological studies. The final decision to transfuse should depend on the evaluation of the patient's clinical status and the benefits must be weighed to the potential risks of transfusion.

References:

A CASE REPORT: ECTOPIC PREGNANCY DUE TO FAILURE OF EMERGENCY CONTRACEPTIVE

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Abstract:
An ectopic pregnancy is a pregnancy that develops outside the mother's womb when the fertilized egg from the ovary does not implant itself normally in the uterus. It is usually found in the first 5-10 weeks of pregnancy. To prevent unwanted pregnancy, emergency contraceptive used has been popular since the last two decades. It is seen to have 99% successful rate if taken within 72 hours after unprotected coitus and of which 1% is seen to have normal pregnancy or ectopic pregnancy. Early diagnosis through thorough and detail history collection/physical examination with early management has saved many maternal lives from unwanted risks, shocks, death etc.

Keywords: Ectopic, emergency contraceptive, human Chorionic gonadotrophin (HCG).

Introduction:
An ectopic pregnancy is one in which the fertilized ovum is implanted and develops outside the normal endometrial cavity. It contributes significantly to the cause of maternal mortality and morbidity. It has been seen that with increased incidence over the couples of decades, there has been a decline in the mortality rate. The recent improvement in the management of ectopic pregnancy is due to the recognition of high risk cases, early diagnosis (even before rupture) through the use of advent technology i.e; transvaginal ultrasonography (TVS), serum beta hCG and laparoscopy surgery.

Extra-uterine and intra-uterine are the sites of ectopic implantation and of which the most commonly seen is tubal ectopic pregnancy which the extra-uterine site. The main causes of tubal ectopic pregnancy are due to the damage and dysfunction of the fallopian tubes, eg; tubal adhesion, pelvic inflammatory disease, salpingitis, previous tubal surgeries, and alteration in tubal motility. The alteration in the tubal motility is mainly due to the use of certain contraceptive methods.

To avoid unwanted pregnancy after unprotected sexual intercourse, the new era (since two decades) has come up with the development of emergency contraceptives methods and the commonly used are;

- combined hormonal regime (Yuzpe method) in which two tablets of Ovral (0.25mg levonorgestrel and 50microgram ethinyl oestradiol) to be taken within 72hrs after coitus and two more tablets to be taken 12hrs later.
- Levonorgestrel 0.75mg can be taken exclusively for 2 doses separated by 12-hours interval.

World Health Organization, Thaler shows that levonorgestrel efficacy was best when exclusively use than that of other emergency contraceptive methods available.

The case report below occurred after the use of emergency contraceptive pills containing two tablets (1.50mg) levonorgestrel as single dose after 24 hours but within 72hours of unprotected sexual intercourse by woman who does not have risk factors for ectopic pregnancy.
A Case report:
A patient came to the OPD (1st visit) on the 15.01.2013 with the complaint of missed period and on urine test at home (using preg- kit) it was found to be positive. Her last menstruation period was on the 12.12.2012. Through history collection it came to know that the patient took an emergency contraceptive after 48 hours of contact with her husband but within 72 hours. She has been married for more than six years and has a 5 years daughter.

On examination the patient's height is 152cm and weight 47kgs, vital signs were normal, no sign of pale and pallor, no history of any abortion or previous ectopic pregnancy and no complaint of abdominal pain or tenderness. According to her last menstrual period, her gestational age was almost 5 weeks (i.e; 4weeks 6days). Per vaginal examination was not done. On vaginal ultrasonography, it was found that the uterine endometrium lining was thick and cavity was empty. It was not clear so the doctor's advised her to come after 1week. A week after the patient again went for check-up (2nd visit) and this time she came with the complaints of brownish discharge from the vagina. On examination through vaginal ultrasonography it was again found that the endometrium lining was thick, no reports of any gestational sac in the cavity and the doctor told that probably the brownish discharge must have been the implantation bleeding. It was also advised for serum beta hCG investigation and report shows it to be 3000IU/L.

Still with these reports and findings the doctor advised the patient to come again after one more week because of the emptiness in the uterine cavity. The patient started showing stressful face and anxious looks, the concerned doctor counselled the patient not to worry and fixed date for the next week appointment. By the end of that week, the client gestation age has reached 7 weeks. On that third visit, still with the complaints of slight brownish thick discharge, vaginal ultrasonography was done. This time the uterine cavity still remains empty but a clear gestational sac with cardiac activity was seen on the left side of the fallopian tube. After a thorough vaginal ultrasonography it was diagnosed to be a left sided ectopic pregnancy with a positive cardiac activity.

The doctor’s then explained the condition to the patient and that immediate intervention should be taken. The positive fetal cardiac activity in the fallopian tube has the risk of tubal rupture which may lead to many complications. So surgical removal of the ectopic was advised through laparoscopy. Pre-operative investigations was done and report shows serum beta hCG =3900IU/L, haemoglobin = 12.4mg/dl, A+ blood group. On the same day of diagnosed the ectopic pregnancy, emergency laparoscopic of left sided salpingectomy was done. The surgery was successful and condition of the patient improved day by day. The client then got discharge on the 7th post-operative day with no complaints and stable vital signs.

Discussion:
Emergency contraceptive may be considered to be safe from unwanted pregnancies after unprotected intercourse as showed by many studies. Used of emergency contraceptives account for 75% reduction in the unwanted pregnancies. After the unprotected intercourse, it is seen that only 5.2% is the pregnancy rate, when emergency contraceptive is used correctly i.e; with 2 doses of 0.75 mg levonorgestrel at a 12-hour interval, a maximum of 72 hours.

Many studies reported the effectiveness of emergency contraceptive pills in lowering the risk of pregnancy and their use reduces the chance of ectopic pregnancy. But still, few women faced the danger of being diagnosed with ectopic pregnancy. In fact, statistics supported the fact that women who took emergency contraceptives were less likely to have ectopic pregnancy simply because they were less likely to become pregnant.

The mechanisms of levonorgestrel is said to be multifactorial. It is seen that the progesterone drug level prevent the egg to move through the isthmus because of the relax tubal myoelectrical activity. As discussed above, changes in the motility of the tubes contribute to a delayed transportation of the egg from the tube to the endometrial cavity, which is a fact leading to the occurrence of ectopic pregnancy.
It should be accentuated that the effectiveness of the emergency contraceptive pills/treatment is said to be best and almost 100% when the drug is taken up to 24 hours after unprotected intercourse. It is seen that with the delayed and the increase in the time duration between the period of coitus and the beginning of treatment the efficacy is little low. It is because the mechanism of contraceptive action occurs mainly during fertilization and not during the period of blastocyst implantation.\[8\]

Report from literatures among women who does not have any identifiable risk factor for ectopic pregnancy believe the cause of ectopic pregnancy was due to unfertilized and fertilized ova which remains in the ampulla for almost 3 days.\[11\]

**References**

**Conclusion:**
Ectopic pregnancies are dangerous and it is still one of the leading causes of death among the reproductive age pregnancy, because of tubal rupture which may be due to late diagnosis and intervention. Ectopic pregnancies occur when the baby starts growing outside the uterus and this risk both the baby and the mother. Emergency contraceptives are believed to stop the pregnancy before it starts, which may be one cause of the pregnancy to be ectopic. So, early diagnosis for early management is very important so as to prevent rupture of the ectopic pregnancy and prevent death from shock and to reduce the maternal mortality rate in India.
A CASE OF DISSEMINATED TUBERCULOSIS WITH OCULAR INVOLVEMENT

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Abstract:
Disseminated Tuberculosis (DTB) refers to tubercular involvement of two or more non-contiguous sites and is commonly associated with immunocompromised state. It is an unusual presentation of Tuberculosis (TB), especially in the absence of immunodeficiency. 1.4% of patients with Pulmonary Tuberculosis (PTB) develop ocular manifestations but many patients with ocular TB have no evidence of PTB. Tuberculosis can cause a wide variety of ophthalmic findings, ranging from the ocular surface through the optic nerve and to the central nervous system. In this article, we report a case of Disseminated Tuberculosis with ocular involvement in a 5 years old female. Our case is unique for the presence of bilateral squint, unilateral nebular type of corneal opacity, bilateral iritis with posterior synechiae and cataract at the same time. It lays emphasis on the fact that a patient with tuberculosis should be screened for multiple foci.

Keywords: Disseminated Tuberculosis (DTB), posterior synechiae, squint, cataract

Case Report:
A 5 years female child was admitted with the history of evening rise of temperature (100°F-101°F) for last 10-12 days which was associated with cough for same duration. She was also having nausea, vomiting, generalized headache and decreased appetite for last 5-6 days. She also complained of visual disturbances and photophobia for last 15 days.

There was no significant past history. There was no history of contact with PTB. She had received all her vaccines as per National Immunization Schedule. Her developmental milestones were also normal as per age. Her ophthalmological examination had also been done 5 months back as she was complaining of headache and was recorded to be normal.

On physical examination, the child was irritable and disoriented. Her vitals were stable. There were obvious bilateral squint and corneal opacity on the right eye. There were few scattered crepitations on chest auscultation. There was no hepato-splenomegaly or meningeal sign. She had no lymphadenopathy. No other focal neurological signs were evident.

Following admission, her blood count showed Hemoglobin 10.2gm/dl, Total Leucocyte Count 10,100/cumm with Neutrophil 66% and Lymphocyte 30%, Platelet count 5 Lakh/cumm, Reticulocyte count 1.2%, Erythrocyte sedimentation rate 16 mm in first 1 hour. C-reactive protein was 20.6 mg/dl. HIV serology was non-reactive. Chest X-Ray revealed bilateral diffuse miliary mottling suggestive of Miliary Tuberculosis [Figure 1].

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Figure 1: Mantoux test was 10 mm in transverse dimension. Zeihl-Neelsen stain for acid fast bacilli. Early morning gastric aspirate was positive for 2 consecutive days. Cerebro-spinal fluid study showed cells of 50/cumm with all lymphocytes, protein 64.6gm/dl, sugar 55gm/dl (capillary blood glucose-90 mg/dl), Adenosine Deaminase 8.9 U/L (normal upto 10 U/L).
Ophthalmological check-up revealed bilateral squint, right side nebular type of corneal opacity, bilateral iritis, festooned shaped pupil with posterior synechiae and cataract. Posterior segment could not be examined properly due to presence of corneal opacity and cataract.

Magnetic resonance imaging (MRI) of Brain revealed multiple granulomatous lesions suggestive of Tuberculoma in right fronto-parietal and left cerebellar region with perifocal oedema [Figure 2]. Her immunological profile and CD4 and CD8 counts were all normal.

**Figure 2:** She was started on anti-tubercular treatment (ATT) with Isoniazid, Rifampicin, Pyrazinamide and Ethambutol (HRZE) daily along with intravenous Pantoprazole and Dexamethasone in a dose of 0.15 mg/kg 6 hourly. On day 5 of ATT, her sensorium improved, she became clinically better and was accepting oral feeds. We discontinued Dexamethasone and shifted over to oral prednisolone in a dose of 2 mg/kg/day in two divided doses. On day 6, she was communicating well and was discharged on day 8 and was advised to continue ATT for 9 months on alternate day therapy (2HRZE, 7HR) according to updated Revised National Tuberculosis Control Program (RNTCP) and Prednisolone was continued for 6 weeks in tapering doses. On follow up she has improved and is maintaining a stable condition on completion of 9 months of ATT without any focal neurological deficit. Squint has been resolved but cataract not, and we are planning for cataract extraction.

**Discussion:**

DTB is a contagious bacterial infection in which TB bacteria has spread from the lungs to other parts of the body through the blood or lymphatic system. DTB develops in a small number of infected people whose immune systems do not successfully contain the primary infection [1,2]. Although previously reported, it should be specifically screened for in any patient diagnosed with TB.

Miliary TB is a potentially lethal disease if not diagnosed and treated early. Diagnosing miliary TB can be a challenge as clinical manifestations are nonspecific. Typical chest radiograph findings may not be evident till late in the disease. High resolution computed tomography (HRCT) shows randomly distributed miliary nodules and is relatively more sensitive[3]. MRI is commonly used for the detection of abnormalities such as meningeal enhancement, infarcts, communicating hydrocephalus with signs of cerebral oedema, tuberculomas[4,5]. Fundus examination for choroid tubercles, histo-pathological examination of tissue biopsy specimens, conventional and rapid culture methods for isolation of Mycobacterium tuberculosi (M.TB), drug-susceptibility testing, along with use of molecular biology tools in sputum, body fluids, other body tissues are useful in confirming the diagnosis [6]. Our patient had chest x-ray features suggestive of military TB and MRI features suggestive of Tuberculoma in brain. A high index of clinical suspicion and early diagnosis and timely institution of ATT can be life-saving. Response to first-line anti-tuberculosis drugs (ATD) is good [3].

Treatment should be promptly started with standard ATT as the condition is uniformly fatal if not treated early. Treatment protocol consists of intensive phase of 2 months with 4 drugs namely Isoniazid, Rifampicin, Pyrazinamide and Ethambutol(HRZE) followed by continuation phase with Isoniazid and Rifampicin(HR). However, there is no consensus regarding optimum duration of therapy. Treatment should be continued for atleast 6 months which may be extended upto 12 months depending on response. Children who show poor or no response at 8 weeks of intensive phase (IP) may be given benefit of extension of IP for one more month. In patients with TB Meningitis, spinal TB, miliary / disseminated TB and osteo-articular TB, the continuation phase shall be extended by 3 months making the total duration of treatment to a total of 9 months. A further extension may be done for 3 more months in continuation phase (making the total duration of treatment to 12 months) on a case to case basis in case of...
delayed response and as per the discretion of the treating physician. Under RNTCP, all patients shall be covered under directly observed intermittent (thrice weekly) therapy [6]. Similar directly observed intermittent (thrice weekly) therapy was employed in our patient for 9 months, to which she has responded.

The current incidence of ocular Tuberculosis is uncertain. 1.4% of patients with PTB develop ocular manifestations but many patients with ocular TB have no evidence of PTB. Ocular TB is most often a result of hematogenous spread during PTB or extra-pulmonary tuberculosis. Infection may also occur via local spread from an active sinus or meningeal infection. It is often unilateral and asymmetric. Tuberculosis infection of the eyelid can start discretely as a minute nodule and later become lupus vulgaris, often accompanied by lymphadenopathy [7]. The most common manifestation of ocular involvement is uveitis, usually presenting as a chronic anterior uveitis, panuveitis or as a choroiditis. Broad posterior synechiae in patients with latent TB have been highly suggestive of tuberculous uveitis in India and Singapore. The most frequent complications related to TB-uveitis included cystoid macular edema (40%) and cataract (38.9%) [8]. Other anterior segment presentations include conjunctival granulomas, phlyctenulosis, sclerokeratitis, interstitial keratitis, episcleritis [9].

The most common ocular sign in posterior segments is choroidal mass followed by choroiditis [7]. The presence of choroidal lesions, with or without inflammation, is strongly correlated with systemic disease. The majority of the choroid tubercles are unilateral, and can range in size from 1-4 mm to several disk sizes in diameter [9]. Other posterior segment findings include optic neuropathy and cranial nerve palsies [9].

In our case ocular findings were bilateral squint, right side nebular type of corneal opacity, bilateral iritis, festooned shaped pupil with posterior synechiae and cataract. Posterior segments could not be examined properly due to presence of corneal opacity and cataract. We are reporting this case as Disseminated Tuberculosis is an uncommon presentation of Tuberculosis and furthermore she had distinct ocular findings.

We would specifically like to emphasise that whenever TB is found in any organ, evidence of TB in other locations should be looked for, as early diagnosis and prompt institution of proper therapy is utmost importance for TB especially for DTB.

References:

PERIODONTAL PROSTHESIS - REVIEW

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Abstract:
Planning a course of treatment for periodontally compromised patients is a multidisciplinary approach involving sequential therapy by a Periodontist and a Prosthodontist. Specific problems have to be recognized and a treatment plan has to be formulated from both the disciplines to deliver best professional and clinical skills in management of a periodontally compromised individual. Hence this review article addresses case characteristics, objectives, sequence of therapy and treatment planning in patients receiving periodontal prosthesis.

Keywords: Periodontally involved teeth, Multidisciplinary approach, periodontal prosthesis

Introduction:
Periodontal diseases are a complex condition occurring as a result of etiological factors combined with the systemic condition of the individual. Any individual whose periodontium has been affected will require rehabilitation of both periodontium and affected tooth structure. The incidence of prosthetic treatment in patients with reduced periodontal support is constantly on the rise.

Periodontal prosthetic patient is best managed with joint consultation as a team consisting of Prosthodontist, Periodontist and is frequently to include Orthodontist, Endodontist and Oral surgeon. Throughout the course of the therapy the team should have a coordination with each other and patient as well so as each mode of treatment is planned carefully to attain highest success in treatment. ¹

Case characteristics of periodontal prosthetic patient / patients requiring periodontal prosthesis

Patients in need of periodontal prosthesis clinically present following situations. ² ³ (Fig 1)
• Periodontitis varying from moderate to advanced stage
• Mobility of the tooth with migration
• Posterior bite collapse
• Malpositioned teeth
• Improperly done restorations contributing to periodontal problems
• Furcation invasions
• Plaque accumulation, root sensitivity, root caries and gingival inflammation due to increased exposure of proximal root concavities and flutings.
• Poor esthetics
• Difficulty in mastication due to absence of stable occlusion
• Parafunctional habits leading to incisal and occlusal wear
• Radiographically – Deep angular infra bony defects, osseous cratering, furcation involvement, horizontal bone loss and loss of lamina dura ⁴ (Fig 2)

Objectives of therapy in periodontal prosthetic patients

The best approach to manage a periodontal prosthetic patient is as a team which consist mainly a Prosthodontist and a Periodontist and sometimes also includes the Orthodontist, Endodontist and Oral surgeon. The team must have co ordination during the course of treatment
and also communication with the patient is necessary for better treatment outcome. The main purpose of periodontal aspect of the program is to establish a sound foundation in which the final prosthesis will be placed.

Its objectives are.\(^{1,6}\)

- Removal of local and environmental etiologic factors
- Plaque control and oral hygiene maintenance during the course of therapy
- Removal of pockets
- Restoring osseous and gingival contours
- Removal of furcal invasions by combined periodontal, endodontic and prosthetic procedures.
- Periodic recall and maintenance program.

The goal of the treatment program should establish the physiologic form and function of all the teeth and should also control tooth mobility by mechanical stabilization through splinting. The prosthesis must have the following designs.\(^{5,6}\)

- It should establish physiologic occlusion
- It should stabilize the mobile teeth
- Development of embrasure form and proximal contact relationships, marginal fit and coronal contours
- Replacing in adequate restorations
- Establishing esthetic and phonetic features.

Following are different types of periodontal prosthesis

1. Hawley Bite Plane Therapy.
2. Provisional Restoration and Stabilization.
3. Periodontal Splints.
5. Telescopic Crown Prosthesis.
6. Semi Precision and Precision Attachment.
7. Gingival Prosthesis.

**1) Hawley bite plane therapy**

The maxillary Hawley appliance with an anterior bite plane is useful in periodontal prosthetic cases in numerous ways.\(^7\)

Whenever there is occlusal trauma this appliance serves the following purpose

- Provides rest for neuro musculature and periodontal attachment apparatus
- Posterior occlusal disarticulation
- Control of local etiologic factors causing inflammation
- Enhance healing of occluso traumatic lesions.\(^8,9\)

**2) Provisional restoration and stabilization (fig 3)**

Provisional restorations help in management of periodontal prosthetic patient and are placed during the surgical phase of therapy. One of the most important functions of provisional restoration is stabilization of mobile teeth. However, during the early phases of initial therapy will result in decrease in tooth mobility through the control of inflammation and initial occlusal adjustments, lesions of irreversible and progressive tooth mobility must be treated.\(^10,11\)

**3) Periodontal splints**

Splinting is mechanical joining to teeth to enhance their ability to withstand forces placed on them. Splinting of teeth whether temporary or permanent, is adjunctive therapy; it will not cure periodontal disease. However dental splinting can prevent

a) Pathologic migration
b) Retain teeth in position
c) Facilitate treatment during scaling, curettage, and periodontal surgery
d) Support teeth so that the effect of occlusal interferences can be more readily located and removed by occlusal equilibration
e) Stabilize teeth so that occlusal forces are distributed to a combination of teeth rather than to individual teeth.

**Indications and contraindications of splinting**

**Indications**

a) Usually, FPD’s and splints are preferable to RPD’s with advanced loss of periodontal support. They provide rigidity and a more favorable force distribution to the remaining periodontium.\(^12\)
b) There is an agreement that splinting of mobile teeth and FPD’s, after periodontal and initial occlusal therapy is indicated when mobility is increasing and interfering with chewing ability and comfort. Lindhe indicates splinting for

- Progressive mobility of the tooth as a result of gradual increasing width of the periodontal ligament in teeth with reduced height of the alveolar bone.
- Increased bridge mobility despite splinting

c) Progressive mobility can be controlled by uni lateral splints even though resistance to bucco or labiolvingual mobility is less than mesiodistal mobility.

d) Increased bridge mobility requires cross arch splinting.

The main objective of splinting is to produce an environment where total mobility of the splint is normal or at least no longer increasing.

e) Nyman et al. have demonstrated long term splint stability despite minimal periodontal support and hyper mobility of isolated abutment teeth.

Contraindications

a) Most patients with moderate periodontitis, having slight or no detectable mobility after periodontal treatment, do not require fixed splints

b) Lindhe described two situations

1. Increased mobility of the tooth with increased width of the periodontal ligament, but normal height of the alveolar bone
2. Increased mobility of a tooth with increased width of the periodontal ligament and reduced height of the alveolar bone.

c) Splinting is contraindicated in patients with gingivitis. Resolution of inflammation by root planning and reduction of occlusal prematurities will usually significantly reduce detectable mobility.

d) Patients with advanced periodontitis have varying numbers of teeth that exhibit severe bone loss, advanced mobility, and edentulous areas.

Classification of stabilization by Splinting

Teeth can be splinting by several methods.

A) Temporary stabilization

I. Removable extra coronal splints
II. Fixed extra coronal splints
III. Intracoronal splints
IV. Etched metal resin bonded splints.

B) Provisional stabilization

I. Acrylic splints
II. Metal bond and acrylic splints.

C) Long term stabilization

I. Removable splints
II. Fixed splints
III. Combination removable and fixed splints

4) Restorative treatment procedures using pins in periodontal prosthesis (Fig 4)

Parallel and Non parallel pin techniques are used in dentistry for teeth that exhibit mobility. It is temporarily splinted for cases exhibiting marked mobility to re evaluate prognosis, if the teeth is firm then prognosis is more favorable after which permanent stabilization is instituted.

Advantages of pin retained restoration

1. Retention of restoration
2. Conservation of tooth structure
3. Operators chair time is less
4. Good esthetics of natural labial and buccal enamel
5. Hygiene better than complete veneer crowns
6. Reduced laboratory procedures
7. Less cost than complete veneer crowns
8. Good stabilization of mobile teeth can be achieved by parallel pin technique

Disadvantages of parallel pin technique

1. Possibility of encroachment upon dental pulp
2. More attention to detail needed by the operator
3. Technicians unfamiliar with the technique
4. Abutment restoration might become loose if depth of the pins into sound tooth structure is not sufficient
5. If buccal and lingual walls are thin and un supported enamel fracture might occur

Advantages of non parallel pin technique

These advantages are in addition to those of parallel pin technique
1. May be used with crowded or malposed teeth
2. No necessity of paralleling device.¹⁷

5) Telescopic crown prosthesis in severe periodontal destruction (Fig 5)
Telescopic crowns prosthesis consists of covering the prepared teeth with thin gold copings, or thimbles, that in corporate shoulder on the gingival margins to which super structure is abutted with temporary luting agents.¹⁸ The surface of the copings are un polished because cement will not adhere to a polished surface. The copings may be soldered or removed as individual units with the superstructure that provides splinting. Often these two approaches are integrated in a single case. If complete arch splinting is necessary, cross linkage of abutments across soldered copings allows a bilateral splint to be divided into manageable units.¹⁹

Advantages:
1. It is difficult to prepare the walls of the short teeth to a minimal taper for resistance form. Copings are contoured to nearly parallel axis to overcome this problem.
2. Paralleling of severely tipped abutment teeth is possible without orthodontics.
3. Full arch periodontal splinting is accomplished in multiple smaller segments.
4. Abutment teeth are protected if superstructure is dislodged.
5. Super structures temporarily cemented can be removed for treatment of recurrent periodontal disease.
6. Teeth with minimal prognosis can be intentionally included in a splint, which can be eventually extracted with the abutment crown converted into poetic
teleoscopying is contra indicated.

6) Semi precision attachment and precision attachment in terminal borderline cases (Fig 6)
Whenever there is a periodontally involved arch principles of stabilization and intra arch support can be achieved with intra coronal semi precision or precision attachment. As a general rule removable partial dentures with extra coronal clasps should not be used as a splinting vehicle as they create forces too great for periodontally involved teeth to withstand. The intra coronal retainers on the other hand, allow for better control of bucco lingual, mesio distal and vertical forces.

Advantages of intra coronal retainers over extra coronal clasp:
1. It prevents lateral stresses in the periodontium of the retainers during insertion or removal, and stabilizes the abutment teeth against lateral forces. With intra coronal retainer’s attachments, the forces of function are directed vertically.
2. The intra coronal attachments use parallel walls rather than undercuts to resist the forces of displacement.
3. It can be used for short clinical crowns, and it eliminates the display of clasps.²⁰

Disadvantages:
1. Intra coronal attachments require prepared abutments and castings; but in the case of periodontally involved and mobile teeth, splinting is usually recommended.
2. They also require complicated clinical and laboratory procedures.
3. Eventually wear, with resultant loss of frictional resistance to denture removal
4. They are difficult to repair or replace
5. Intra coronal attachments are effective in proportion to length, thus they are least effective in short teeth. It is true that at least two third of the length of the manufactured precision attachment must be used for satisfactory results, but now with the milled in semi precision cases and other developed techniques, this is no longer a factor of concern.
Keywords: Periodontally involved teeth, Multidisciplinary approach, periodontal prosthesis - Prakyath Malli

7) Gingival prosthesis (Fig 7 and 8)

Gingival replacement prostheses have historically been used to replace lost tissue when other methods of regenerative procedures are considered unpredictable or impossible, with this method, large tissue volumes are easily replaced.

Tissue replacement prostheses are used to replace tissue lost through surgical gingival procedures, trauma, ridge resorption or traumatic tooth extraction. Materials used for gingival prostheses include pink auto cure and heat-cured acrylics, porcelains, composite resins and thermoplastic acrylics, as well as silicone-based soft materials.

Gingival defects are treated with surgical or prosthetic approaches. Minor procedures to rebuild papillae and
grafting procedures that may involve not only soft-tissue manipulation but also bone augmentation to support the soft tissue. With the success of these treatments the result mimics the original soft tissue contours. It is possible to create esthetically pleasing and anatomically correct tissue contours when small volumes of tissue are being reconstructed, but this method is unpredictable when a large volume of tissue is missing. The surgical costs, healing time, discomfort and unpredictability make this choice unpopular.

Prosthetic replacement, with acrylics, composite resins, porcelains and silicones, is a more predictable approach to replacing lost tissue architecture. It is especially useful when a larger amount of tissue needs replacement. Ideal tissue contours can be waxed, processed and then colored to match the surrounding tissue. The patient need not undergo any additional surgical procedures and receives an esthetically pleasing, functional restoration. It is possible to show the patient a waxed-up result or even take a try in prosthesis directly to the mouth for evaluation before significant treatment is initiated.21

Discussion:
Prosthodontic treatment of a patient with periodontally involved teeth is a multidisciplinary approach. It includes fabrication of a simple fixed prosthesis to complicated procedures like full mouth rehabilitation. Each patients presenting with different clinical situations has challenging treatment to be formulated by the operators. Sequence of therapy, combination of different aspects of treatment and operator skill play an extremely critical role in the success of managing such patients. The objectives of treating these patients have been arrived at removal of all etiologic factors, treating the cause of periodontal breakdown, prosthetic stabilization and maintaining oral health with recall program. The array of prosthesis includes bite plane appliances, splints to precision attachment and telescopic crowns. Gingival prosthesis is another form of periodontal prosthesis given for replacing lost soft tissues. Accurate diagnosis holds a key for the longevity of treatment success in these cases.

Patient cooperation is yet another aspect for good management of patients. Since it is a multidisciplinary approach, several appointments may be required to complete the course of treatment and patient compliance in maintaining also plays a major role in long term success. This review article has compiled all aspects of treatment with periodontal prosthesis.

References:
ONCOLOGY NURSE NAVIGATOR PROGRAMME - A NARRATIVE REVIEW

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1

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Abstract:
Introduction: Cancer Care is complex and often requires multiple health care professionals to work in a coordinated and integrated fashion to deliver most effective care available. A team based approach from surgeons, medical oncologists, radiologists, nurse specialists and social worker is required to ensure quality and continuity in care. Specific nursing roles in cancer services are expanding and evolving.

Objective: To explore the role of nurse as navigator in oncology care.

Methodology: Literature survey was conducted from published journals, text books and online databases (CINAHL, Pubmed, Proquest, Ovid, Medline and Science direct) from January 2000 to January 2014 by using terms pivot nurse, oncology nurse, case manager, nurse navigator, patient navigator, oncology nurse navigator along with terms oncology or cancer care.

Results: Literature review on nurse navigator programme reveals positive outcomes in various aspects of cancer care, but lack of consensus in study population, intervention settings, outcome measures and methodologies have been noted.

Conclusion: Patient navigation using nurses is viewed as an effective strategy to improve standard of oncology care delivered. This review provides evidence that nurse navigator programme can improve specific patient outcomes in cancer care.

Keywords: patient navigation, nurse navigator, cancer care, patient outcomes

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Introduction:
Cancer is a huge global health burden; touching all region and people from different socioeconomic level. Continuum of cancer care spans a lengthy trajectory from initial diagnosis through treatment. Cancer care is complex and usually requires a team based approach from multiple health professionals to ensure quality and continuity in care. Coordination of cancer care has gained increased attention recently because it can critically and positively affects patient safety as well as care quality across different services and settings. Nurses have a major role in cancer patients' care and many specific nursing roles in cancer services are expanding and evolving. Certain specific nursing roles and its application in cancer care have been tested in a few countries. A primary literature search reveals lack of published literature/studies from India. Hence the objective of this review is to explore the emerging role of nurse as navigator in oncology care.

Methodology:
Literature survey was conducted from published journals, text books and online databases (CINAHL, Pubmed, Proquest, Ovid, Medline, Science Direct) from January 2000 to January 2014. Since nurse navigation is a new term the key words used were oncology nurse, pivot nurse, case manager, patient navigator, nurse navigator, oncology nurse navigator along with terms oncology or cancer care.

Literature review
Literature review is organized under following headings

Keywords: patient navigation, nurse navigator, cancer care, patient outcomes - Shejila C H
o Concept of Patient Navigation
o Role of oncology nurse
o Oncology nurse navigator
o Effectiveness of patient/nurse navigation programme

Concept of patient navigation

The word *navigate* is derived from two Latin words - *Navis* (ship) and *agree* (to drive).

The meaning of word navigate is to travel over or through safely. Navigation is a process whereby a patient is given personalized care and support across the continuum of cancer care. The first patient navigation programme was created by Harold P. Freeman at Harlem Hospital, New York in 1990 and thereafter the model continues to evolve and expand. Patient navigator programmes share characteristics with case management and it is focused on a range of health care needs and issues. The model focuses on meeting the needs of patients such as providing disease and treatment related information and support and linking with other health care professionals. It is noted that services provided include detection of cases, identification of barriers to care, development and implementation of care plan and tracking throughout treatment and its completion.

Role of oncology nurse

Nurse's role as a care provider, manager, principal educator and advocate has developed over many years. Oncology nurses are remarkably involved in education of patients, their families, peers and public. They provide patients with information about disease, management of side effects, nutritional care, emotional coping and other skills that can be developed and nurtured. Oncology nurses are suitable for this task because of their greater knowledge and understanding of various aspects of cancer care. Patients need a qualified nurse to provide information and education about their care, manage their needs and problems from diagnosis through treatment and survivorship and help them to develop coping mechanisms.

Oncology nurse navigator

The term nurse navigator has introduced to the oncology health care setting in recent years but seems to continue to fall under the broad heading of patient navigator. The national comprehensive cancer network (2011) stated that the patient navigator is most often a nurse and used the term patient navigation interchangeably with case manager. The Oncology Nurse Navigator is a professional whose clinical nursing expertise guides patients, families and their caregivers in informed decision-making; collaborating with a multi-disciplinary team, allow for timely cancer screening, diagnosis, treatment, and supportive care across the cancer continuum. But the Navigator role goes beyond minimal function of a case manager or a patient advocate. Navigators oversee the treatment process, provide information and support to the patient, link with other professionals in treatment process and act as a single, constant contact. It is a more widely used term in addressing problems related to integration, coordination and continuity of cancer care, and is fit in with the concept of a holistic approach that centres on the quality of life of the person with cancer. Nurse navigator role has been implemented in different health care settings and is helpful to the multidisciplinary team for continuum of patient care from diagnosis to survivorship. Specific roles of nurse navigator in cancer care is illustrated in Figure 1.

Effectiveness of patient/nurse navigation programme

A randomized controlled trial conducted by Myriam Skrutowski et al revealed the impact of a pivot nurse in decreasing Symptom distress, fatigue and improving QOL in patient with lung and breast cancer.

A systematic review conducted by Robinson et al on patient navigation in breast cancer reported that adherence to cancer care enhanced with patient navigation.

A descriptive study conducted by Swanson J on oncology
The nurse navigator’s role in management of distress revealed that visits of navigator have a statistically significant effect on inpatients’ distress scores (p=0.044). Carrol JK in a qualitative study with 35 Breast and colorectal cancer patients tried to explore Patients experiences with navigation. The results of study reveal that Navigated patient received emotional support and assistance with informational needs, problem solving and coordination of cancer care. Case B conducted a systematic review to explore impact of oncology nurse as navigator on specific patient outcomes revealed that nurse navigator programme showed positive outcomes related to time of diagnosis, different mood states, support and continuity of care, patient satisfaction and cost outcomes.

In a randomized controlled trial Kevin Fiscella et al revealed that patient navigation has improved satisfaction with care in breast and colorectal patients.

Few studies have been illustrated in the form of a methodological matrix in Table 1

### Table 1: Studies on Patient Navigation/Nurse Navigation in Cancer Care

<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Aim</th>
<th>Study Variables</th>
<th>Design</th>
<th>Sample and Sample size</th>
<th>Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ann Hook 2012</td>
<td>Explore patient satisfaction in newly diagnosed breast cancer patients</td>
<td>Patient satisfaction</td>
<td>Non experimental, descriptive study</td>
<td>103 patients in rural community setting</td>
<td>72% satisfied with NN</td>
</tr>
<tr>
<td>Carrol JK 2010</td>
<td>Explore Patients experiences with navigation</td>
<td>Navigation care</td>
<td>Qualitative</td>
<td>35 Breast and colorectal cancer patients</td>
<td>Navigated patient received assistance with informational needs, problem solving, emotional support and cancer care coordination</td>
</tr>
<tr>
<td>Robinson et al 2010</td>
<td>Evaluate outcome of navigation in breast cancer care</td>
<td>Screening, diagnosis, treatment</td>
<td>Systematic review</td>
<td>Studies from 1990-2009</td>
<td>Evidence supports patient navigation has improved many aspects of breast cancer care</td>
</tr>
<tr>
<td>Case B 2010</td>
<td>Explore impact of oncology nurse as navigator on specific patient outcomes</td>
<td>Time of diagnosis, support and continuity of care, mood states, satisfaction and cost outcomes</td>
<td>Systematic review</td>
<td>18 studies</td>
<td>Positive outcomes in time of diagnosis, support and continuity of care, mood states, satisfaction and cost outcomes</td>
</tr>
<tr>
<td>Swanson J 2010</td>
<td>Determine role of ONN in distress management</td>
<td>Distress scores</td>
<td>Descriptive study</td>
<td>55 in patients with cancer</td>
<td>Patients seen by ONN Shows lower distress scores</td>
</tr>
<tr>
<td>Fiscella k 2008</td>
<td>To assess Time of completion of treatment, satisfaction with care, psychological distress</td>
<td>Time of completion of treatment, satisfaction with care, psychological distress</td>
<td>RCT</td>
<td>438 breast and colorectal cancer patients</td>
<td>No statistical difference in completion of treatment, high satisfaction, less psychological distress</td>
</tr>
<tr>
<td>Skrutowski M, 2008</td>
<td>Examine presence of pivot nurse in relieving symptom distress, fatigue, improve QOL and use of health resources</td>
<td>Fatigue, symptom distress, QOL and use of health resources</td>
<td>RCT</td>
<td>113 patients with breast and lung cancer</td>
<td>No significant difference in Symptom distress, fatigue, QOL and use of health resources</td>
</tr>
</tbody>
</table>
Results
The literature reviewing nurse navigator programmes has proved positive outcomes in various aspects of cancer care like diagnosis, timeliness in completion of treatment, support and continuity of care, patient satisfaction and use of health resources. But divergency in studies has been noted in study population, intervention settings, outcome measures and methodologies. Most of the research studies are conducted in breast cancer, lung cancer, head and neck cancers and colorectal cancers.

Discussion
Patient and their families need a constant support nurse, advocate or a navigator to guide them through the increased perplexity of cancer care. Since the introduction of patient navigation into oncologic care, nurse researchers have clearly identified specific care outcomes that result from presence of oncologic nurse navigator. The nurse’s role in navigated care for cancer patients has been defined and implemented diversely. Lack of consensus in areas like qualification of navigator, scope of practice, health care setting, disease or area of navigation focus contributes to diverse use of this concept in patient care. Lack of standardization in navigator programmes challenges researchers in this field of study.

Future Directions and Implication for Nursing Practice
Nurse navigator programme is a promising resolution for patient care inadequacies, effective means for reducing barrier in oncology care and increase patient satisfaction and quality of care. This model has been already implemented in most of the developed countries. Interventions need to be developed in developing countries like India to enhance treatment adherence, since non compliance with treatment due to increasing cost is a major problem. Research based evidences are lacking on use of an appropriate conceptual framework for implementation of a nurse navigation programme. Further

Keywords: patient navigation, nurse navigator, cancer care, patient outcomes - Shejila C H
studies are warranted in evaluating patient satisfaction using nurse navigation in various types of cancers as well as in different populations of patients. Specific tools to test and validate patient navigation programmes are lacking, so identification of key components and its relevant evaluation tools to test effectiveness of navigation programme is essential. Replication of studies exploring various patient outcomes and nurse navigation will offer the necessary evidence base to trend in oncologic nursing.

Conclusion:
Navigation is a process by which encompasses assessment of patient needs, development of a plan for education, coordination, communication, support and implementation of same for effective transition through the illness and evaluation of its effect on patient, family and care givers. Patient navigation using nurses is viewed as an effective strategy to improve standard of oncology care as well as to achieve organizational outcomes.

References:
BODY DONATION AS GIFT TO MEDICAL SCIENCE FOR BETTER TOMORROW - LITERATURE REVIEW

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Abstract:
Anatomy is one of the basic and very important subject studied by medical students at the beginning of their medical career. Best method for learning anatomy is by dissection of human cadavers and this forms an indispensable part of training health care professionals. Since the numbers of medical institutions are increasing, there is an increased demand of cadavers for anatomic dissection. Body donation is an act of donating one’s body after death for medical research and education. In this article an attempt has been made to collect literature related to body donation, its importance and the ethical issues related to body donation.

Keywords: Anatomy, dissection, body donation, medical education

Introduction:
Anatomy is the study of structure of human body and forms the basic subject studied by undergraduate and postgraduate students. Dissection of human cadavers forms an integral part of anatomy learning and research. Only source for the cadavers in the medical institutions will be unclaimed bodies and few donated bodies. As the number of medical colleges are increasing in the present scenario, most of the medical schools experience difficulties in obtaining adequate number of cadavers. At present, unclaimed bodies are the main source of cadavers that is coming from the authorised government institutions. So the body donation programmes should be encouraged by the medical schools and regular campaigns must be held to create awareness among the public regarding Body donation.

Significance of Body Donation:
Anatomical donation or body bequest is defined as act of giving one’s body after death for medical education and research and thus a person can give back to society a chance to learn something that can influence generations to come. Delmas suggested that the donation is a clear will made by persons free and informed. Body donation is considered as an ultimate gift which should be appreciated by the educators. Availability of textbooks and internet information cannot replace the cadaveric dissection in learning anatomy. So hands on experience provided by the cadaveric dissection is superior to other artificial substitutes. Apart from learning anatomy it is also used for developing new surgical techniques. Body donation is the preferred source of availability of cadavers worldwide.

History:
In ancient India human body was dissected by shushruta by about 500 B.C. It was his belief that for one to be a skilful surgeon, one must first be an Anatomist. Even though the issue of using humans for dissection was in opposition to religious law, it was an essential tool for true understanding of human Anatomy. The concept of acquiring knowledge by dissection of human body initially started in the fifteenth century and it was initially done by Andreas Vesalius (1514-1564). Slowly and steadily the importance was realised. Once autopsy was accepted to establish the cause of death, importance of dissection was more enlightened. By establishment of Anatomy act 1832,
unclaimed bodies were used for anatomic dissection. By 18th and 19th century, the anatomical dissection became very popular in United States medical education. When the demand for cadaveric supply increased, the thefts by grave robbers became more common and sold the bodies to medical schools for dissection. Murder act established in 1752, permitted the use of corpses of executed criminals for dissection. Donation of body to science was unheard till Jeremy Bentham, philosopher donated his body to science in 1832.

**Body Donation and Anatomy Act:**

Body donation is regulated by various acts according to each country and is considered as the expression of solidarity. In the United Kingdom, the Anatomy Act was passed in 1832 which permitted the donation of the body of the deceased by his kin. This permitted doctors, teachers of Anatomy and bonafide medical students to dissect donated bodies. This act was replaced by the Anatomy Act 1924, which was in turn replaced by the Human Tissue Act 2004. In India, the Anatomy Act was enacted in 1949 and is adopted by all states. It calls for the supply of unclaimed bodies to medical and teaching institutes for the purpose of anatomical dissection and for research purposes. It can be donated by relatives of deceased according to the wishes of the deceased. The Anatomy Act is a state act published in the State Government Gazette. According to this almost anyone can donate for medical research and education. It provides for the collection of a dead body for teaching purpose, only if death occurs in a state hospital or in public place within a prescribed zone of medical institution. Provided that police have declared a lapse of 48 hours that there are no claimants for the body and it could be used for medical purposes. Patnaik suggested that a draft act should be made for all the states to use as a model for amendment of anatomy acts in order to avoid the discrepancies existing between any two or more acts.

**Factors Affecting Body Donation:**

There are few researches that are conducted to know the factors that influence the willingness of body donation. Boulware et al. showed that the important factors that can influence body donation will be race, ethnicity, demographic factors, awareness about body donation, age, sex, education, occupation, income, religious aspects and so on. He conducted a study among the households of Maryland and observed that the older age is negatively associated with willingness to donate cadaveric organs. He also showed that demographic and attitudinal factors were also involved in the decision to donate one’s own body. Armstrong in his study noted that younger age group were more willing to donate when compared to older one in Australia. Similar finding was also recorded by Alashek et al, noted that lack of adequate knowledge, unease about body manipulation and religious implications were the barriers for cadaveric donation. Golchet et al reported that many factors like age, culture, personality characteristics, views on death and mortality and humanitarian concerns influence people's opinion towards body donation. Bolt et al revealed that there are three principal factors motivating Dutch people for body donation like desire to be useful after death, negative attitude towards funeral and expression of gratitude. Rokad and Gaikawad noted that the reasons for Indian donors to donate their bodies was due to the fact that the body should be utilised for mankind's benefit than being burnt to death. Negative factors that can affect body donation were also studied. Most important factor for less number of body donation in Indians is due to lack of awareness. Few of the general population are aware of body donation. The attitude of anatomists towards body donation is not well known. Organ donation is more preferred when compared to body donation not only by general population but also by the medical personnels.

**Role of Social Networks:**

Society should play a major role in motivating the people to donate their bodies for training of medical and other health care professionals. According to Cantorovitch, main reasons for “No body donation” are due to lack of awareness, religious uncertainties, distrust of medicine and hostility of new ideas. In the present scenario, mass media can play a major role in motivating the society. Conesa et al studied the influence of television, press and
magazines, hoarding and posters, campaign about donation, information given by health professionals regarding body donation. It was observed that media with greater impact was television, second was press and radio, the third being magazines and talks with health professionals.

Body Donation Programme:
Body donation is a generous and unselfish act for those who wish to be useful to living after death. There is no substitute for cadaveric dissection in learning anatomy and new surgical techniques. Body donation units should be established in all medical schools and awareness programmes should be designed. That factors that can cause repulsion for body donation should be taken care. Awareness programmes should be started with the help of mass media Alashek et al suggested that public educational campaigns should be conducted with religious leadership. Donors should be assured that their bodies will be treated with dignity and respect. Practise of honouring the cadavers at the commencement of medical course by students and teachers as followed in Korea should be followed in all medical schools.

Conclusion:
Dissection of human cadavers is compulsory for medical education. So one cadaver dissection can teach many doctors who can treat thousands of patients and can be a relief to their loved ones. So the decision of an individual to donate his/her body is gift for advancement of medical sciences. Government should encourage and educate the public to create awareness about organ and body donation. Body donation is the act of giving one's body after death without any conditions for education and research in medicine.

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INSTRUCTIONS TO AUTHORS

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4. Materials and Methods
5. Results
6. Discussion
7. Conclusion
8. Acknowledgement
9. References
10. Tables with captions separately
11. Figures with legends separately

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The abstract must be in a structured form and explain briefly what was intended, done, observed and concluded. The conclusions and recommendations not found in the text of the article should not be given in the abstract.

Keywords: Provides 3-5 keywords which will help readers or indexing agencies in cross-indexing the study. The words found in title need not be given as key words. Use terms from the latest Medical Subject Headings (MeSH) list of Index Medicus. A more general term may be used if a suitable MeSH term is not available.

Introduction: It should start on a new page. Essentially this section must introduce the subject and briefly say how the idea for this research topic originated. Give a concise background of the study. Do not review literature extensively but provide the most recent work that has a direct bearing if any on the subject. Justification for research aims and objectives must be clearly mentioned without any ambiguity. The purpose of the study should be stated at the end.

Materials and Methods: This section should deal with the materials used and the methodology (how the work was carried out). The procedure adopted should be described in sufficient detail to allow the experiment to be interpreted and repeated by the readers, if desired. The number of subjects, the number of groups, the study design, sources of drugs or dosage regimen or instruments used, statistical methods and ethical aspects must be mentioned under the section. The data collection procedure must be described. If a procedure is a commonly used, giving a previously published reference would suffice. If a method is not well known (though previously published) it is better to describe it briefly with due acknowledgement. Give explicit descriptions of modifications or new methods so that the readers can judge their
accuracy, reproducibility and reliability.

The nomenclature, the source of material and equipment used, with details of the manufacturer in parentheses, should be clearly mentioned. Drugs and chemicals should be precisely identified using their non-proprietary names or generic names. If necessary, the proprietary or commercial name may be inserted once in parentheses. The first letter of the drug name should be small for generic name (e.g., dipyridamole, propranolol) but capitalized for proprietary names (e.g., Persantin, Inderal). New or uncommon drug should be identified by the chemical name and structural formula.

The does of drugs should be given as unit weight per kilogram body weight e.g., mg/kg and the concentrations should be given in terms of molarity e.g., nm or mM. The routes of administration may be abbreviated e.g., intra-arterial (i.a), intracerebroventricular (i.c.v), intra-gastric gavage (i.g.), intramuscular (i.m.), intraperitoneal (i.p.), intravenous (i.v.), per os (p.o.), subcutaneous (s.c.) transdermal (t.d); etc.

Statistical Methods: The variation of data should be expressed in terms of the standard error of mean (SEM) or the standard deviation (SD), along with the number of observations (n). The details of statistical tests used and the level of significance should be stated. If more than one test is used it is important to indicate which groups and parameters have been subjected to which test and why.

**Results:** The results should be stated concisely without comments. They should be presented in logical sequence in the text with appropriate reference to tables and / or figures. The data given in tables or figures should not be repeated in the text. The same data should not be presented in both tabular and graphic forms. Simple data may be given in the text itself instead of figures or tables. Avoid discussions and conclusions in the results section.

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**Conclusions:** It must be drawn considering the strengths and weaknesses of the study. Make sure conclusions drawn should agree with the objectives stated under Introduction.

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- Serially numbered in Arabic numerals?
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- Columns have headings?
- Units of data given?
- “n” mentioned?
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- Statistical significance of groups indicated by asterisks or other markers?
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