Special Edition

EDITORIAL

Research is integral to nurture one's potential and achieve goals. Development of critical reasoning skills is helpful for overall development of a student and academician.

Writing is the best way of sharing one's scientific work. The habit of doing research and publishing it is an integral part of one's journey in today's academic world. The SMU Medical Journal invites all health care professionals to exhibit their talent in the field of research and publishing. The adage "Publish or Perish" is often seen as a threatening remainder of the importance of publishing. But in a broader term, if the results of research are not shared, it is a waste of one's talent and energy.

My first introduction to research was when I started my post-graduation and had to write a dissertation. So when Dr. Polly Lama came with the concept of organising the 1st Annual Student Research Colloquium at SMIMS, I was a little sceptical but it was overwhelmingly heartening to see the young minds of our students coming up with such brilliant ideas for research.

I would request all health care professionals in and around Sikkim to actively contribute to the Journal and add to the ocean of knowledge.

Dr. B. Khandelwal
Associate Dean (Research)
Prof & HOD
Sikkim Manipal Institute of Medical Sciences
Gangtok

LETTER FROM THE EDITOR IN CHIEF

The SMU Medical Journal is into its 5th year of publication as an e - journal. The prime focus being to publish research articles related to Medical sciences in Medical , Experimental and allied branches . This issue (Volume 5 Number 2 June 2018) is a special issue to bring to the forefront abstracts of the research work being done by students of Medical Sciences including Nursing , Physiotherapy and Biotechnology

The 1st Annual Student Research Colloquium   is being organized in the Sikkim Manipal University on the 18th and 19th of June ,2018 and is a platform from where the young students /researchers would be able to show the diverse work being done by them.

The research work being conducted has gone through the process of Review by the   Research Project Evaluation committee (RPEC) and then the Institutional Ethics committee (IEC)

The   research in some instances have been supported by the Short Term studentship (STS) of the Indian Council of Medical Research and Department of Biotechnology or have been part of the research work supported by the University.

 The compilation of the abstract in this special issue of the SMU medical Journal shall encourage them to take up larger studies or apply for funding and publish in high impact journals in the future. This effort of the students needs to be appreciated. The publication of their abstracts should be a stepping stone for world class work in the future.

No work is small and these small steps lead to bigger conclusions!!

Student Research is one of the major focus of this Journal and with publication of this   special issue this point is reiterated.

Dr Yogesh Verma, MD
Professor
Department of Pathology
Sikkim Manipal Institute of Medical Sciences
Gangtok

OVERVIEW

SMU Medical Journal is biennial peer reviewed ejournal* published under the aegis of Sikkim Manipal University. Prime focus of the Journal is to publish articles related to research in Medical Sciences in Medical, Experimental. And Allied branches (Nursing, Physiotherapy and Biotechnology).A fair number of academics and health care workers undertake small research projects to understand some problems that are confined to the field area they work, but they find it difficult to convince the world at large the significance they feel about it. This Journal provides the platform with aim of helping students, academics and researchers in the field of bio-medical science to project their findings even though they may be feasibility studies, may be limited due to lack of appropriate sample size or lack of sophisticated instrumentation, show negative results or P values are not significant**. This journal publishes original research work (authentication of the data provided may be asked for). All manuscripts are subjected to a review process initially by an assigned reviewer then the editorial board.

* a print version may be started at a later date

** Daniel Benjamin "all research should be published, regardless of P value" Nature 3rd August 2017, Vol 548 Issue7665 page 17

The Journal invites

- Review articles
- Research related to laboratory based experimental work, clinical survey, development of methodology in clinical services, epidemiological work, hospital based surveys, case series and their summary findings, educational research in medical sciences, nursing, physiotherapy, medical biotechnology, medical laboratory technology and engineering applications in medical science.
- Appropriate articles related to application of disciplines of humanities in biomedical research may also be published subject to the discretion of the editorial board. e.g. health economics.
- Short communications from undergraduate students and postgraduate students
- Scientific Memoirs and Meta-analysis
- Results of applications of new protocols in bio-medical sciences

EDITORIAL BOARD

MESSAGE FROM THE ORGANISING SECRETARY….

On behalf of SMIMS, Welcome to the 1ST Annual Student Research Colloquium 2018.

The organizing committee is pleased to host this meeting at the Auditorium of Sikkim Manipal Institute of Medical Sciences on18th and 19th June 2018, for the first time.

The Annual Student Research Colloquium is supported by Dr. Ramdas Pai & Vasanthi Pai endowment fund and garner's the research work of the medical, para-medical graduate & postgraduate student from Sikkim Manipal Institute of Medical Sciences (SMIMS), Sikkim Manipal College of Nursing (SMCON) and Sikkim Manipal College of Physiotherapy (SMCOP). The focus of this meeting is on the development of young research trainees and scientists of SMIMS, SMCON and SMCOP, and to provide students with opportunities to present their work in the scientific sessions which is set at a national & international conference level.

This year's program includes keynote address by the VC, SMU, Professor (Dr) M D Venkatesh and Dean, SMIMS Professor (Dr) G.S Joneja. The program also includes 23 oral presentations selected from the submitted abstracts, as well as three poster sessions, with a total of 22 poster presentations. 6 awards will be provided for best student oral and poster presentations.

I Dr. Polly Lama, the organising secretary of the 1st Annual Student Research Colloquium would like to thank all the members of the scientific committee, the stage & catering committees, and especially the Associate Dean Research Professor (Dr) Bidita Khandelwal and the SMU Journal editorial board members for making this meeting a part of SMU Medical Journal.

Dr. Polly Lama,
Assistant Professor, Dept of Anatomy
Sikkim Manipal Institute of Medical Sciences
Gangtok

Scientific Committee:
- Associate Dean (Research), Professor (Dr) Bidita Khandelwal, Medicine, SMIMS
- Professor (Dr) V. K Mehta, Head of Department, Community Medicine, SMIMS
- Professor (Dr) Mridula Das, Principal, SMCON
- Professor (Dr) Nikita Sonowal, Principal, SMCOP
- Professor (Dr) T.A Singh, head of Department, Biochemistry, SMIMS
- Dr. Polly Lama, Assistant Professor, Anatomy, SMIMS

Isolation and Tri-lineage Differentiation of Mesenchymal Stem Cells from Human Umbilical Cord Wharton's jelly

Rachana Khati[1], T Paras Singh[2], T A Singh[2]

Department of Medical Biotechnology[1], Department of Biochemistry[2], Sikkim Manipal Institute of Medical Sciences

Introduction: Mesenchymal stem/stromal cells (MSCs) isolated from different adult tissues have been reported by many studies. Human umbilical cord Wharton's Jelly (hUCWJ) is a rich and promising source of MSCs due to its close association with embryonic tissue. MSCs can be characterized based on the expression of specific cell surface markers, but to be more specific if the cell is MSCs, it is important to verify its ability to differentiate into adipocytes, chondrocytes, and osteocytes (tri-lineages). Therefore, the aim of the study was to verify functionally the multipontency of MSCs *invitro* by isolating it from hUCWJ and to analyse its differentiating tri-lineage

Ms. Rachna Khati,
M.Sc., Biotechnology
Scholar

potential, which fulfils one of the three recommended minimal criteria for defining MSCs.

Methods: The MSCs from hUCWJ were isolated by explant culture. The complete mediums include Dulbecco's modified eagle's medium, Glutamax, low glucose, fetal bovine serum and antibiotics. At 3rd passage, complete medium was aspired, rinsed with PBS and supplemented with adipogenic, osteogenic and chondrogenic differentiation medium on to the culture plate. After 14 days of cultivation, adipogenic and chondrogenic culture was stained with Oil Red O staining and Alcian blue respectively. Osteogenic can be stained as early as 21 days by Alizarin Red S stain.

Result: In culture, MSCs from hUCWJ started to migrate within 7-9 days from the explant. MSCs continue to undergo limited expansion as they differentiated under adipogenic, osteogenic and chondrogenic condition. The MSCs cultured in osteogenic media formed aggregates and extracellular calcium matrix. During chondrogenic differentiation, the accumulation of sulphated proteoglycans was visualized. Adipogenic cell differentiation was apparent by the accumulation of lipid-rich vacuoles within cells. The lipid vacuoles continued to develop over time and eventually filled the cells.

Conclusion: The isolated cells from hUCWJ met one of the criteria for defining MSCs. Further, these cells took much longer duration to differentiate toward osteogenic lineage in comparisons to chondrogenic and adipogenic lineage.

Intervertebral disc cell clusters exhaust with increasing grades of disc degeneration

Pulkit Muterja[1], Polly Lama[1], MA Adams[2]

Department of Anatomy[1], Sikkim Manipal Institute of Medical Sciences, Centre for Applied Anatomy[2], University of Bristol, UK

Introduction: Cell clusters are considered to be an histological hallmark of intervertebral disc degeneration. These clusters arise from cell proliferation, and in degenerated discs are associated with premature replicative senescence. Cells in clusters thus remain metabolically active and accumulate its products over time, and it is possible that they could play a major role in matrix breakdown. We hypothesize, that cell clusters are associated with increased cell proliferation in the initial stages of degeneration and increased synthesis of matrix degrading enzymes (MMP-1) during late stages of degeneration.

Mr. Pulkit Mutreja,
M.B.B.S (Year 3)

Methods: An histological, immunohistochemical and gene expression analysis was carried out on 20 surgically-removed disc tissue specimens from patients (aged 31-67yrs) undergoing surgery for disc herniation or disc degeneration. The control disc were from cadavers with no history of back pain, and were graded according to Thompson score as grade 1. Histological degenerative changes such as fissuring, proteoglycan loss, and clustering, were assessed on ordinal scales. Cell clusters immunopositive for MMPs 1, were counted across each entire section, along with gene expression analysis of PCNA (proliferating cell nuclear antigen) and MMP-1. Specimen groups were compared with ANOVA, and associations were assessed using Spearman's rank correlation.

Results: Cell clusters were abundant near fissures in herniated and degenerated discs, especially in the inner annulus, and they strongly associated with proteoglycan depletion ($r_s=0.53 p<0.001$). MMP-1immunopositivity were greatest in cell clusters in herniated and severely degenerated discs ($p<0.05$). Gene expression for MMP-1 increased with severity of degeneration, while PCNA expression declined ($P<0.05$). Control discs showed fewest clusters, least proteoglycan loss, least immunopositivity to MMP's while PCNA expression remain constant.

Conclusion: Cell clusters are most common in herniated and degenerated tissues, and co-localise with fissured proteoglycan-depleted matrix, and elevated MMP activity. During initial stages of disc degeneration PCNA expression increases, suggesting accumulation of proliferating cells with reparative potential, but this activity declines as the grades of disc degeneration progresses to severity. Thus, cell clusters increase expression of matrix-degrading enzymes, leading to further matrix disruption in severely degenerated discs.

Comparative evaluation of the utility of conventional polymerase chain reaction and agar plate culture technique for detection and species differentiation in human hookworm infection

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Department of Microbiology[1], Department of Pediatrics[2], Sikkim Manipal Institute of Medical Sciences

Introduction: Hookworm infection is one of the important causes of iron deficiency anaemia in children. Microscopy is still considered the gold standard however microscopy alone cannot differentiate between hookworm species and other similar strongyloid. Sensitive diagnosis test is essential in the less resource setting areas. Therefore, the aim of this study was to evaluate detection of human hookworm infection by PCR and agar plate culture techniques.

N.Onila Chanu,
Ph.D Scholar

Methods: A total of 300 samples were collected from the children with the age group of 0-15 years with gastrointestinal symptoms during April 2015 to April 2017 who had attended Central Referral Hospital, Tadong and Sir Thutob Namgyal Memorial Hospital, Gangtok. All samples were divided into two parts, one part was subjected to microscopy and Agar plate culture (APC) and the other parts were used for molecular polymerase chain reaction (PCR) methods.

Results: Intestinal parasites detected in this study were 70/300, in which 20/300 was hookworm infection by microscopy. In the Agar plate culture method, 18/20 samples were identified as *N.americanus* and 2/20 samples were Strongyloides. There were no *Ancylostoma spp* detected by APC. With PCR method, 16/20 samples were identified as *N.americanus* and 2/20 samples were identified as *A.duodenale* and 2/20 samples were Strongyloides. There was no mixed infection detected by both APC and PCR in this study.

Discussion: This identification of larvae isolated from this study was in concordance with the observations made by dos Neto, Jongwutiwes *et al*. In the similar studies done by Shahid SB *et al*, they found 10.15% hookworm; out of this 11.53% were *A.duodenale* and 88.47% were *N.americanus*, Parija SC *et al*., found 53.6% were *A.duodenale*, 43.7% were *N.americanus* & 2.7% were mixed infections of both. In some of the recent studies, which are based on PCR method, Ngui R et *al.,* studied 47 microscopy samples of which 76.6% were *N.americanus*, 12.8% were *A.ceylanicum*, 10.6% had mixed infection of both. In another study done by Chidambaram *et al*., out of 16 hookworm samples subjected for PCR, all of them were identified as *N.americanus*, and the results from this study supports the hypothesis that sensitive detection technique are vital for parasite associated with hookworm infection.

Study of Inflammatory Marker in Diabetic Nephropathy in Sikkim's Population

Sneha Sewa[1], Parvati Nandy[2], Arundhati Bag[1], Rashmi Rekha Phukan[3], Rajit Mullick[1]

[1] Department of Medical Biotechnology, SMU, [2] Department of Medicine, SMIMS, [3] Central Lab, CRH, SMIMS

Introduction: Diabetes mellitus (DM) is a metabolic disorder characterized by chronic hyperglycemia accompanied by greater or lesser metabolic impairment of carbohydrates, lipids and proteins, leading to both microvascular and macrovascular diseases like retinopathy, neuropathy and nephropathy. Diabetes affects people worldwide and India has most diabetic population around the world. Inflammation can be directly associated with the risk of developing DM. Inflammatory cytokines are reportedly linked with the pathogenesis of diabetic nephropathy (DN). Certain inflammatory

Ms. Sneha Sewa, M.Sc., Biotechnology Scholar

markers like C-reactive protein (CRP), Interleukin-6 show a significant increase in the serum of type 2 DM patients with DN as the severity of the conditions gradually increases. The main focus of this study was thus to evaluate the inflammatory marker CRP in patients with type 2 DM.

Methods: The study was approved by Institutional Ethical committee of SMIMS, and patients with type 2 diabetes visiting Central Referral Hospital were included in the study. DM patients with nephropathy were identified by urine sample analysis. Blood samples were then collected from the patients. Serum was separated from blood sample. Written consent was collected from each participant. CRP in the serum was studied by latex agglutination method.

Results and Discussion: Out of 6 DM patients studied, 4 had proteinuria, 1was without proteinuria and protein status of one was not known. Out of 4 patients with proteinuria 2 were positive for CRP and rest were negative for CRP. This observation suggests that serum CRP, an acute phase protein, is a potent inflammatory marker that can be studied for its role in development of diabetic nephropathy within large sample size.

Duration of Internet Usage on Neural Tension in Medical and Allied Health Students of Sikkim Manipal University: A cross-sectional study

Hajer kemli, Nikita Joshi Sonowal, Manish Goon

Sikkim Manipal College of Physiotherapy

Introduction: Internet is highly established as a part of our everyday life, it is accessible to everybody regardless of gender, age, profession, class or culture. It provides students especially asynchronous education where they can reach any kind of information anytime and anywhere. However, the potential impact of its use on health, particularly in relation to physical and psychological discomfort and disorders have shown concern to researchers. Therefore, the aim of this study was to determine the relationship between the neural tension and the duration of internet usage in Medical and Allied Health students of Sikkim Manipal University.

Ms. Hajer Kemli, Master of Physiotherapy Scholar

Methods: 160 students aged 18-30 years old met the eligibility criteria. Participant filled the prescribed porforma, followed by neural tension test starting with upper limb test then slump test.

Results: Chi-square test showed a significant relationship between forward head posture and internet addiction (IA) $p<0.001$ and ULTT2 (UPPER LIMB TENSION TEST) of both sides $p<0.001$. There was no significant association between ULTT3 of the dominant side and IA $p>0.05$. Fisher's exact test showed a significant association between ULTT1 of the non-dominant side and IA.

Discussion: It was found that the participants who used internet for a longer period of time had lesser ROM in elbow extension and vice versa. There was a significant difference in the neural tension response of median, radial and ulnar nerves in both dominant and non-dominant hand. It was found that moderate usage internet can affect the radial nerve. Since most of the participants use their phone in a relax sitting position they develop a slouch on their backs over longer period of time. These results suggest that subjects who tend to use internet for more than 3 hours per day may have an increased neural tension.

Stress, depression, anxiety experienced and coping strategies adopted by the spouses of alcohol use disorder admitted to selected hospitals of Sikkim

Soney Tamang, Champa Sharma, Barkha Devi,

Sikkim Manipal College of Nursing

Introduction: Alcohol is a family disease and effects the person who is drunker but mostly affected person in the family are the spouses of the drunker who are affected emotionally, physically, socially and psychological. Spouses feel difficult to manage married life and feel stressed, thus this study was designed to understand the correlation between stress, depression, anxiety experienced and coping mechanism adopted by spouses of alcoholic users.

Ms. Soney Tamang, M.Sc., Nursing Scholar

Methods: The research approach used was quantitative non-experimental, descriptive design, study setting conducted in medical and psychiatric ward of selected hospitals in Sikkim. 60 spouses of alcohol use disorder were selected through non-probability purposive sampling technique. Audit scale was used in alcohol use disorder clients admitted in the hospitals to assess the pattern of alcohol use, further the spouses were taken for the study and were interviewed using DASS scale and structures coping scale was used to assess coping strategies.

Results: AUDIT scale reveals that the alcohol use disorder clients who scored more than 7 were hazardous or harmful alcohol users. Findings revealed that among 60 spouses, 41.67% had severe stress, 33% moderate depression and 38.33% had moderate anxiety. Coping was assessed in different domains i.e. psychological, financial, familial, social and spiritual, and it was found that to minimize the effects of the situation the spouses used positive coping strategies in psychological, financial, spiritual domain but in familial and social domain they use negative coping. Findings of the study revealed that there is a positive correlation between stress, anxiety, depression and coping strategy used by the spouse, and also there is association ($p>0.05$) between level of stress, depression and anxiety with the selected demographic variables.

Discussion: The problem of alcoholism though defined in context of an individual effects has an overall impact in the family as a whole, causing disharmony within the family, and among all, the wives of alcohol users are mostly affected with a higher rate of stress, depression and anxiety with a significant association with the demographic variables.

A feasibility study to Escherichia Coli: Can Zinc-oxide based nanomaterials inhibits infection?

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Department of Medical Biotechnology[1], Department of Pathology[2], Sikkim Manipal Institute of Medical Sciences

Introduction: The genus is named after Escherich who first isolated the bacillus under the name Bacterium coli commune. Esch.Coli is a gram negative bacillus measuring 1-3 um x 0.4-0.7 um. Urinary tract infections are among the most common bacterial infections in humans and Escherichia Coli is by far the most commonly recovered bacterial pathogen from both hospital and community patients with this infection. Zinc oxide is a mild astringent and topical protectant with some antiseptic action. It is also used in bandages, pastes, dental cements and as a sunblock. The aim of this study was to determine the frequency of urinary tract infections caused by E.Coli and to examine the presence of antimicrobial resistance/ susceptibility strains of Escherichia Coli in inpatients.

Mr. Vishal Tamang,
M.Sc., Biotechnology
Scholar

Methods: Urine samples were collected from four UTI patient's, followed by the Kibry Bauer disc diffusion method that allowed the E.Coli to grow for 24 hrs. E.Coli was transferred to peptone water for 2 hrs for further growth. With the help of the cotton swab E.coli were transferred to muller hinton agar plate. 2mm diameter Wattmen filter papers were placed on top of the well. 10ul of Silver Gold Zinc Oxide nano particles were poured on the wattmen filter paper and kept for incubation for 24 hrs.

Results: In E.Coli positive samples from UTI patients, sterilize nano material zinc oxide formed clear zone of inhibition in E.coli.

Conclusion: This study shows sterile Zinc Oxide showed a positive result on E.Coli obtained from urine samples of UTI patients. Further studies need to address the toxicity of Zinc oxide.

Prevalence of unexpected antibody in voluntary blood donors and blood transfusion recipient in Gangtok

Chamma Gupta, N N Bhuyan

Central Referral Hospital, Sikkim Manipal Institute of Medical Sciences

Introduction: Clinically significant irregular antibodies (Abs) are capable of causing massive transfusion reactions secondary to accelerated destruction of a significant proportion of transfused RBCs. Unexpected/irregular Abs which are formed mostly as part of the immune response after exposure to foreign antigens during pregnancy or transfusion can complicate blood transfusion, cross matching and can occasionally cause acute & delayed haemolytic transfusion reactions. Knowledge as well as screening of such Abs is essential not only in multitransfusion patients but in all patients requiring

Ms. Chamma Gupta, Senior Research Fellow (ICMR)

transfusion. The main objective of the study was to screen & identify unexpected Abs in blood samples. This study helped in selecting appropriate RBC products for transfusion, preventing transfusion reactions and avoided unnecessary delays in blood provision in case of emergencies/surgical complications.

Methodology: A cross-sectional study was carried out in 2415 samples from voluntary blood donors and transfusion recipients for 2 years in blood bank, CRH, Sikkim. Abs was screened & identified using ID system-Gel agglutination technology, coombs card with 3 Cell Panel & 11 Cell Panel.

Result: In the given period, the positive screening rates for unexpected Abs were found to be 1.48% in donors (n=1999) and 3.03% in blood transfusion recipients (n=416). Abs against Kell system were most frequent (Anti-Kpa- 32.1%, Anti-K- 27.7%) followed by Abs against Lutherium system (Lua-22.73%) and against Rh system (Anti-Cw-22.73%, Anti-E -18.18%).

Discussion: Screening donor and transfusion recipient's sera for Abs is capable of detecting potent unexpected Abs that could be the cause of massive transfusion reaction. Here we could positively identify samples with irregular Abs and succeeded in providing compatible blood to transfusion recipients preventing transfusion reactions due to such Abs. Since clinically significant Abs are frequently detected in our donors as well as transfused recipient samples, screening and identification of unexpected Ab is a must a vital need in every blood bank.

Self-criticism & Self-compassion in relation to psychopathology & psychological well-being among medical college students

Debjyoti Das, Harshvardhan Sampath

Department of Psychiatry, Sikkim Manipal Institute of Medical Sciences

Introduction: Health professionals experience enormous levels of responsibility of caring for human lives, placing them at risk of being critical of their work, a trait encouraged right from medical school. This self-critical nature, however, has negative effects on the psychological well-being of doctors. Self-criticism has been shown to be associated with depression, suicidal behavior, anxiety, substance abuse, poor interpersonal relations and social isolation. Self-compassion is polar opposite trait of self-criticism. It involves treating oneself with care and concern when confronted with personal inadequacies and failures. It has been shown to enhance interpersonal

Ms. Debjyoti Das,
M.B.B.S (Year 3)

relationships and psychological well-being. Thus, the aim of this study is to explore the traits of self-criticism and self-compassion among medical college students and to analyze how these traits contribute to psychological well-being.

Materials & Methods: This was a cross-sectional, non-experimental study conducted on MBBS students belonging to SMIMS who gave their informed consent. Rating instruments were used to assess self-criticism (Forms of Self-Criticizing/Attacking Self-Reassuring scale), self-compassion (Self-Compassion scale), psychopathology (Depression, Anxiety & Stress Scale), social relations (Network of Relationships Questionnaire), spirituality (Intrinsic Spirituality Scale), and psychological well-being (Ryff Scale).

Results: 152 medical students participated in the study. Self-criticism significantly correlated positively with psychopathology and negatively with psychological well-being while the reverse was true for self-compassion. Multiple regression analysis was performed to find variables that predicted psychological well-being. Social relationships and spirituality were included as predictor variables as they have been shown to impact psychological well-being. Results indicate that the predictor variables explained a significant amount of the variance in psychological well-being (F= 15.48, p 0.000, R^2= 52.51%, Adjusted R^2= 49.12%). Among these variables only self-criticism (Beta= -1.498, T= -2.27, p 0.025), self-compassion (Beta= 8.03, T= 4.65, p 0.000) and social support (Beta=3.586, T= 4.65, p 0.000) significantly predicted psychological well-being.

Discussions: We found that self-criticism was associated with depression, anxiety and stress and predicted poor psychological well-being. Self-compassion, on the other hand, was associated with low levels of psychopathology and better well-being. Medical students are vulnerable to experience high frequency of failure, criticism & loss. In this regard it is important that they are trained to develop more self-compassion and lesser self-criticism. This can help them deal with the challenges, failures and stress of medical career with enthusiasm and vigour.

Attitude towards suicide and assessment of risk factors of suicide among adolescent at selected schools, Sikkim

Pranita Rai, Champa Sharma, Reshma Tamang

Sikkim Manipal College of Nursing

Introduction: Suicide among the adolescent has witnessed a rapid increase over the past few decades. The major health problems in an adolescent are self-harm and suicide. The present study examines the attitude towards suicide and assessment of risk factors of suicide among adolescents.

Methods: A descriptive survey design was employed among 201 students in the age group of 15-18 years of class X, XI and XII of selected Senior Secondary Schools of East Sikkim. The study subjects were selected through random sampling. The objective of the study was to assess the attitude towards suicide and risk factors of suicide among adolescents.

Ms. Pranita Rai,
M.Sc., Nursing Scholar

Results: 50.4% male and 48.7% female participants had a permissive attitude towards suicide, 63.2% male and 84.25 female participants had a preventable attitude towards suicide, while 50% of male and 48% female participants had an incomprehensible attitude. 48.8% male and 47.4% female participants had an undecided attitude involving avoidance to talking about suicide while 68% male and 64.5% female participants feels that suicide is unpredictable, and 50.4% male and 48.7% female participants agreed that loneliness is the reason for suicide and an attempt of suicide is mostly a cry for help. Risk factors included individual, familial, social, peer relationship and academic factors. It was found that there was significant association between individual factors, social factors, peer relationship and type of family.

Discussion: The results shows various aspects of the attitudes toward suicide that need to be further studied at a psychological level. Future research should also address possible attitudes that might have a negative influence in prevention of suicidal behavior. The intervention of preventive programs may overcome the issue of suicide among adolescents.

Evaluation of DNA damage in Diabetes Mellitus using single gel electrophoresis (Comet Assay)

Safique Alam[1], Yazum Bhutia[2], Rinchen Doma Bhutia[2]

Department of Biotechnology[1]; Department of Biochemistry[2], Sikkim Manipal Institute of Medical Sciences

Introduction: DNA damage, due to environmental factors and normal metabolic processes inside the cell, occurs at a rate of 1000 to 1,000,000 molecular lesions per day. While this counts for only a small part of the human genomes approximately 6 billion bases, unrepaired lesions to critical genes can impede a cells ability to carry out its function and increase the likelihood of cancer. Comet Assay is a single cell gel electrophoresis assay (SCGE) for simple evaluation of cellular DNA damage, and the aim of this study was to analyse the importance of this assay in Diabetes Mellitus (DM) patients.

Mr. Safique Alam, M.Sc., Biotechnology Scholar

Methods: Individual cells are mixed with molten agarose before application to the comet slide. These embedded cells are then treated with a lysis buffer and alkaline solution, which relaxes and denatures the DNA. Finally, the samples are electrophoresed in a horizontal chamber to separate intact DNA from damaged fragments. Following electrophoresis, the samples are dried, stained with a DNA dye and visualized by epifluorescence microscopy. Under these conditions, the damaged DNA will migrate further than intact DNA and produce a "comet tail" shape.

Result & Discussion: DNA damage was quantified by measuring the displacement between the genetic material of the nucleus (comet head) and resulting 'tail'. Tail Moment and Tail DNA% are two most common parameters to analyse Comet assay results, we report that at least 50-100 cells should be analysed per sample. Tail DNA% was calculated as 100 x Tail DNA Intensity/ Cell DNA Intensity. Tail Moment can be measured using one of the following two methods for DM patients: Olive Tail Moment which is calculated as Tail DNA% x Tail Moment Length or Extent Tail Moment which is as Tail DNA% x length Of Tail. The Tail Moment Length is measured from the centre of the head to the centre of the tail (Figures 1, 2, 3).
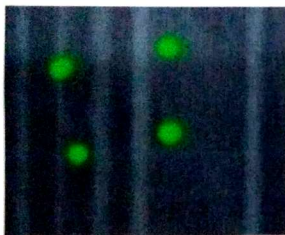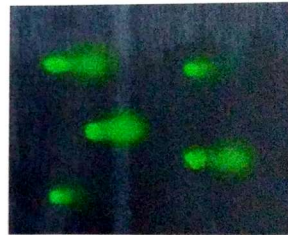
1) Healthy Cells   2) Damaged cells   3) Damaged DNA with Comet assay
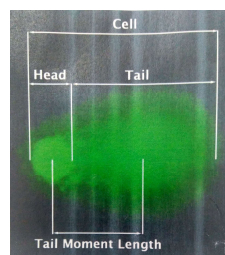
Correlation of antimicrobial sensitivity with biofilm formation among uropathogenic *Escherichia coli*

Shreya Gupta, Karma G. Dolma

Department of Microbiology, Sikkim Manipal Institute of Medical Sciences

Introduction : Urinary tract infections defined as diseases caused by microbial invasion of the genitourinary tract are the second most common infection of the human body, and are usually treated by antibiotics like beta lactams. Production of biofilms and enzymes like ESBLs, AmpC and MBLs renders the treatment ineffective. Thus, this study was carried out to determine the correlation of biofilm production from uropathogenic *Escherichia coli* UPEC) and its association with antibiotic resistance**.**

Ms. Shreya Gupta,
M.B.B.S (Year 3)

Methods: This prospective study was conducted on 275 *Escherichia coli* isolates recovered from 519 urine specimens of UTI patients attending Central Referral Hospital over a period of one year, and antimicrobial resistance pattern was performed by Kirby-Bauer method as per the CLSI guidelines. Biofilm detection was done by well-established tube adherence method and congo red agar test. Statistical analysis was done by evaluating the percentages and simple ratios.

Result and Discussion: Of the 519 isolates of uropathogens, 275 (52.9%) specimens showed culture positive for *Escherichia coli* and the rest 244 (47%) was positive for other micro-organisms. The antibiotics susceptibility test reported higher degree of resistance to most of the cephalosporin group of drugs (82-83%), which was alarming as cephalosporins are the last resort antibiotics, and even though the study reports a low resistance to carbapenem antibiotics, precautions should be taken for ever increasing drug resistance. About 196 (71.2%) strains were positive for biofilm production by congo-red test and 192 (69.8%) were positive for biofilm production by tube adherence test, and it was recorded that the strains positive by both method was highly resistant to ampicillin (72%), cefuroxime (55%), ceftriaxone (47%) and nalidixic acid (41%).

A Cross-sectional study of depression and Quality of life in chronic kidney disease patients undergoing haemodialysis

Shijo John Joseph, Samrat Singh Bhandari, Sanjiba Dutta

Department of Psychiatry, Sikkim Manipal Institute of Medical Sciences

Introduction: Patients with Chronic Kidney Disease (CKD) who receive hemodialysis are vulnerable to emotional problems because of the chronic stress associated functional restrictions, accompanying illness, and adversities of treatment. Studies done around the world and India show that prevalence rates of depression in these patients ranged from 9.9% to 96.66%. Depression has been found to be a significant contributor to poor QoL. There is a scarcity of literature with this regard in our country, which would be essential for better assessment and management of such patients. The aim of this study was therefore to assess depression and Quality of Life (QoL) in CKD patients undergoing haemodialysis and its impact of depression on their QoL.

Dr. Shijo John Joseph,
MD Psychiatry scholar

Methods: Patients were assessed from two dialysis centres in Sikkim. Patient Health Questionnaire-9 (PHQ-9), World Health Organization Quality of Life-BREF (WHOQOL-BREF) and Charlson Comorbidity Index (CCI) scales were used. Sociodemographic and clinical variables were described using mean and SD for continuous variables, while categorical variables using percentages. Normality of the distribution of each of the tested variables was assessed by Shapiro-Wilk test. Non-parametric tests were used for inferential analysis. χ^2 test was used to analyze the categorical data. Kruskal-Wallis and MannWhitney U test was used to find the association between categorical and quantitative variables. Spearman's rho test was used to find the correlation quantitative variables. Data analysis was performed using IBM Statistical Package for Social Sciences, version 20.0 (SPSS 20.0).

Results: The mean age of the participants was 49.21 (SD=13.371). The number of males was higher (58.6%) than females (41.4%). A sizable number of participants (45.9%) were unemployed individuals. The duration of dialysis had a mean of 16.00 (SD=12.781) (in months). The prevalence of depression was found to be 36.04%. QoL had mean scores of 11.1609 (SD=2.61954) for physical health, 13.3682 (SD=2.54318) for psychological health, 16.0360 (SD=2.77192) for social relationships and 14.3919 (SD=1.65887) for environment. Depression was found to significantly impact all domains of QoL negatively. (p-value=0.000, with all domains of QoL)

Conclusion: This study concluded that depression is prevalent in CKD patients undergoing haemodialysis and it adversely impacts QoL in all domains.

Effectiveness of information booklet on knowledge regarding the management of minor disorders of pregnancy among antenatal women attending OPD at selected Hospitals of Sikkim

Doma Giri, Binita Khati, Passang Chiki Sherpa

Sikkim Manipal College of Nursing

Introduction: Pregnancy is a wonderful and special journey in the life of women, where physical and hormonal changes occur drastically and psychological preparation for motherhood begins. Therefore, an expecting mother often experiences discomfort or anxiety symptoms during the course of her pregnancy. Thus, this study was conducted to collect information on whether providing information booklet prevented unnecessary hospitalization and prevented other complications associated during the course of pregnancy.

Ms. Doma Giri,
M.Sc., Nursing Scholar

Method: A pre-experimental one group pre-test post-test design was adopted among 60 Antenatal Women attending antenatal OPD at Sir Thotub Namgyal Memorial Hospital (STNM) and Central Referral Hospital (CRH), Sikkim. Samples were selected by using non-probability consecutive sampling technique. Data were collected from 20th November to 16th December 2017 by using structured knowledge questionnaire.

Results: The findings of the study revealed that in the pre-test, majority 34 (57%) had average knowledge, 24 (40%) had poor knowledge and only 2 (3%) had good knowledge. Whereas, in the post-test, majority 52 (87%) had good knowledge, 8 (13%) had average knowledge and none of them had poor knowledge which clearly indicates a remarkable gain in knowledge after the administration of information booklet.

The result also showed that the obtained 't' value (36.367) is greater than the table value (2.00) at 0.05 level of significance. Therefore, 't' value is found to be significant indicating that there is a significant difference between pre-test and post-test level of knowledge among antenatal women. There was no association between the pre-test level of knowledge with selected demographic variables.

Discussion: The information booklet was found to be effective to improve the knowledge regarding the management of minor disorders of pregnancy among antenatal women.

Study on isolation and colony forming unit for Mesenchymal stem cells

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Department of Biotechnology[1], Department of Biochemistry[2], Sikkim Manipal Institute of Medical Sciences

Introduction: Mesenchymal stem cells (MSCs) also known as Mesenchymal stromal cells are emerging to be a popular sub-type of adult stem cells. Human umbilical cord Wharton's jelly (hUCWJ) are rich and promising sources of MSCs due to its close association with embryonic tissue. It is relatively noncontroversial, easily available source of human tissue. MSCs were originally referred to as fibroblastoid colony forming cells because one of their characteristic features was adherence to tissue culture plastic and generation of colonies when plated at low densities. The efficiency with which they form colonies still remains as an important areas/assay for quality cell preparations. Therefore, the aim of the study was to assess the proliferation of cells and colonogenic capacity of hUCWJ.

Mr. Abhishek Byahut,
M.Sc., Biotechnology
Final Year

Materials and methods: The MSCs from hUCWJ were isolated by explant culture. The complete medium used were Dulbecco's modified eagles medium (DMEM), Glutamax, low glucose, 10 % fetal bovine serum (FBS) and antibiotics. Early passage cells were used for the CFU assay with the final concentration is 150 cells per ml.

Results: In culture, MSCs from hUCWJ started to migrate within 7-9 days from the explant. The MSCs derived from the sources grew long, spindle-shaped cells with prominent nuclei. Low-density plating of cells resulted in the formation of colonies which was visible with Giemsa staining.

Discussion: This study shows high self-replication capacity of hUCWJ, hence, millions of hUCWJ can be produced from a limited quantity of hUCWJ explant tissue. Thus, hUCWJ can be defined as cells which are adherent very rapidly with colonogenic property and able to proliferate extensively.

Normative reference value of 20-meter shuttle-run test in medical and allied health college students of SMU

Nikesh Dangi, Remon chettri, Preeti Thakur

Sikkim Manipal College of Physiotherapy

Introduction: Cardiorespiratory fitness, being one of the most important component of physical vigor is a direct indicator of individual physiological status and reflects the ability of circulatory and respiratory system to supply oxygen during sustained physical activities. Thus, the main objective of this study was to determine the normative reference value of 20-meter shuttle run cardiorespiratory test by estimating VO_{2MAX} in the student population-based sample of 18-25 years.

Mr. Nikesh Dangi, Master of Physiotherapy, Scholar

Methods: A total of 295 students were identified as active participants for this study, 10 students could not meet the inclusion criteria, and 38 students didn't turn up to participate in the study. The remaining 247 students, comprised of 125 females and 122 males with a mean age of 21 years, and with an age range between 18-25 years. The stage that was completed in the shuttle run was expressed as the maximal oxygen consumption (VO_{2max}), an end product of cardiorespiratory fitness. Maximal oxygen consumption was calculated using the equation as described by Leger et. al., [$VO_2max=31.025 + 3.238 *V-3.248 +0.1536 *V *A$], where "V" accounts for the velocity (Km/hr) of the last stage completed and "A" accounts for the subjects age (in years).

Results: Maximal oxygen consumption was found to be same for both the genders within the same age group, but body mass index was found to be an important determining factor in order to predict the maximal oxygen consumption rate. The normative value for Vo_{2max} of the total 247 student subjects using the equation by Leger et al, was found to be 31.83 ml/kg/min.

Discussion: The prevalence of low cardiorespiratory fitness in the obese student subjects could make this subgroup of students susceptible to complications associated with cardiorespiratory system. The location of Sikkim at an altitude of 1,650m (5,410ft) above sea level could influence the normative value for $Vo_{2max.}$

Over-Nutrition and its correlates among the adolescent population in urban field practices area of Sikkim Manipal Institute of Medical Sciences

Nishant Kumar, Vijay Kumar Mehta, Sumit Kar

Department of community medicine, Sikkim Manipal Institute of Medical Sciences

Introduction: The United Nation Organisation defines adolescent as an individual between ages 10-19 years. There is a rising trends in prevalence of overweight and obesity worldwide with a faster increase in developing countries. Healthy eating behaviour, daily moderate, physical activity and less time spend viewing onscreen activities, is imperative for good physical, psychosocial, and cognitive development. The aim of study was to identify overnutrition causes in adolescent population.

Dr. Nishant Kumar,
MD Student,
Community Medicine

Methods: A community based descriptive cross-sectional study was conducted, enrolling 250 adolescent population from urban field practice area of Sikkim Manipal Institute of Medical Sciences. Information was collected using pretested questionnaires, height and weight measurement was done using standardised calibrated instruments. The data were entered in WHO Anthro plus software which calculated the BMI and plotted it on WHO BMI for Age chart for adolescent. Diet survey was carried out using weekly food frequency consumption method.

Results: The median age of study population was 14 year with IQR (10-18 years). The prevalence of over nutrition was found to be 24% in the study population .The co-relates for overnutrition (BMI more than 25kg/m^2) were increased consumption of junk food more than five times a week ($\chi2$=5.3;p= 0.03), screen time more than 2 hour daily (χ^2 = 3.60;p= 0.05) and less than 2 hour of moderate physical activity daily (χ^2= 5.9;p= 0.014).

Conclusions: There is an increase in prevalence of overnutrition in the study population which is associated with increased consumption of junk food, increase screen time and decrease in physical activity indicating a need for focused health and nutrition education among the adolescent population.

Knowledge, Attitude and Help seeking behavior on mental health problems among urban population of Gangtok

Shrijana Pradhan, Thoibi Devi, Prerna Karki

Sikkim Manipal College of Nursing

Introduction: Mental illness produces disharmony in the person's ability to meet human needs comfortably. The study aimed at assessing the knowledge, attitude and help seeking behavior on mental health problems.

Methods: Research design adopted was descriptive survey design and the tools used were demographic profile, structured knowledge questionnaire, attitude rating scale and help seeking behavior questionnaire. The study composed of 200 adult population of the urban area selected using convenience sampling technique.

Ms. Srijina Pradhan,
M.Sc.Nursing

Results: Majority 110(55%) of the urban population fall under age 18-30 years. Most of them 92(46%) were graduates, 68(34%) were employed under Government sectors and 130(65%) live in a nuclear family. Majority 173(86.5%) did not have any history of mental illness. Majority (144)72% of the urban population had average knowledge, (46)23% had good knowledge and (10)5% had poor knowledge regarding mental health problems. 100% of the urban population had favorable attitude towards mental health problems. Majority (192)96% of the urban population had appropriate help seeking behavior, while (8)4% had inappropriate help seeking behavior towards mental health problems. There was a significant relationship between knowledge, attitude and help seeking behavior towards mental health problems. There was no association found between knowledge and selected demographic variables.

Discussion: Findings of the study were consistent to the findings reported by Neog Moni and Khanikar Mridula Saikia where 26% of the urban population had good knowledge, 64% had average knowledge and 10% had poor knowledge regarding mental illness. Based on the findings of the current study, it can be recommended that further research can be conducted on different settings using different study designs that outlines the need of awareness programme regarding mental health problems.

Responsiveness of the BESTest scale to lower extremity interventions in sub-acute stroke

Karma T Lhazom Lepcha, Saumen Gupta, Nikita J. Sonowal

Sikkim Manipal College of Physiotherapy, Sikkim Manipal University, Tadong

Introduction: Balance control is defined as the ability to maintain the body's centre of mass over its base of support. Balance is a composite ability involving the rapid, automatic anticipatory and reactive integration of information from several systems. Hemiparesis and recovering hemiplegia following cerebrovascular accident (CVA) is usually accompanied by balance impairments which restrict their ability to perform activities of daily living and thereby increases the risk of falls. The Balance Evaluation Systems Test (BESTest) has come out as one effective tool covering six different components that contribute to balance control. This makes balance assessment mandatory in the course of treatment and is the main focus of this study.

Ms. Karma T Lhazom Lepcha,
Master of Physiotherapy Scholar

Methods: Study design was follow-up, 18 sub-acute cases of stroke were assessed thrice at the baseline (before discharge), 6th week and the 12th week post standard physiotherapy interventions. The changes in the BESTest at these points were used to calculate the effect sizes and minimally clinical important difference (MCID).

Results: Friedman analysis of variance showed a significant difference in BESTest amongst the three evaluations ($\chi2 = 32.5$, P= 0.00). Effect sizes at 6th and 12th were large (1.91, 2.25 respectively). The minimal clinically important differences of BESTest at 6th and 12th week were 26.87% and 14.58% respectively.

Discussion: The MCIDs in all the domains were higher in 6th week suggesting that this is crucial period for recovery in comparison, to MCID at 12th week. Stability in gait domain showed higher MCID necessary to clinically establish that improvement has occurred at 12th week. Rest of the domains of BESTest and the total score showed lesser MCIDs in comparison to the 6th week . The drop in MCID suggests ceiling effects in these domains.

Different crab host harbouring *paragonimus metacercariae* in Manipur

T Bhamani devi, T. Shantikumar Singh, Kanwar Narain, Paron Dekumyoy, Urusa Thaenkam

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Introduction: Paragonimiasis, is one of the most important food-borne parasitic zoonosis caused by one or more of the trematode species of the genus *Paragonimus* that affects the lungs mainly along with other organs and tissues. It is endemic in many parts of Asia, Africa and South America. Over 20 million people in 39 countries are estimated to be infected with this parasite. About 50 species of *Paragonimus* have been reported in the world, among them *Paragonimus westermani* is regarded as the most common pathogen. Infection is caused by consumption of raw or improperly cooked crabs, crayfish and other paratenic hosts. Thus, the main aim of the study was to analyze these parasites in different crab species in Manipur.

T.Bhamani Devi,
Ph.D Scholar

Methods: Crabs species were collected from mountain streams of Tengnoupal district of Moreh, Manipur, India from July 2017 to March 2018. They were processed by digestion with artificial gastric juice, differential filtration through wire sieves and washing in tap water. *Paragonimus* metacercariae were isolated from the filterable sediments using stereozoom dissecting microscope.

Results: Total 400 crabs were collected from three species of crabs: *Paratelphusula burmensis* (117), *Potamiscus manipurensis* (133) and *Alcomon superciolosum* (150). On the basis of morphological features the harvested metacercariae were classified as large and small *Paragonimus westermani* types, and *Paragonimus heterotremus* type. 10% of *P.westermani* and 14% of *P.heterotremus* metacercariae were detected from crabs species *P.manipurensis*, *A.superciolosum* and few metecercariae were inoculated orally in two Wister rats.

Conclusion: *Potamiscus manipurensis* and *Alcomon superciolosum* were found infected with *Paragonimus* metacercariae indicating that this crab species is the second intermediate host in Manipur. The other crab species *Parathelphusula burmensis* were not infected with *Paragonimus* metacercariae. As three different types of *Paragonimus* metacercariae were isolated, the prevalence of more than two different *Paragonimus* species in Manipur is quite possible.

Knowledge, attitudes and beliefs about breast cancer and barriers to breast self-examination among women attending tertiary care hospital of east Sikkim

Leima Chanu Shakti Yambem, Hafizur Rahman

Department of OBG, Sikkim Manipal Institute of Medical Sciences

Introduction: Breast cancer is a major public health problem with more than one million new cases diagnosed annually. In India breast cancer accounts for 19-34% of all cancer cases and rates as second most common cancer among females. In Sikkim among the ethnic Nepali community, it is the most common cancer among females. Women's knowledge of breast cancer risk factors, symptoms and breast self-examination a practice has been studied in western countries, however, no such studies have been employed among Sikkimese women. Therefore, the main objectives of this study were to:

Ms. Lema Chanu Shakti Yamben
M.B.B.S (Final Year)

- To assess women's knowledge on breast cancer- risk factors, symptoms
- To assess women's awareness, attitudes and practice of Breast Self Examination (BSE)
- To identify women's perceived barriers to the practice of BSE

Materials & Methods: This cross-sectional study was conducted from 1st of May 2015 to 30th of June 2015, involving 302 women between 18 to 65 years of age attending the Out-patient department of Central Referral Hospital. A face to face semi-structured questionnaire-based interview was conducted among the participant women, after taking their written consent. The collected data were thoroughly analyzed using appropriate statistical software. P value <0.05 were considered significant.

Results: Three-fourths of the participants were aware of breast cancer. Eighty percent of the women who had heard about breast cancer were not aware of its risk factors. Majority identified painless breast lump as the most common symptom. Factors which significantly determined awareness of breast cancer were marital status, education, working urban women with higher economic status. Forty six percent of the participants were aware of BSE. Most common source of knowledge was from health professionals. Of the 138 women who were aware of BSE, 41.3% practiced BSE. Majority had started BSE between 21 to 45 years of age. Thirty seven percent of the participants practiced BSE once in a year. Working women and students were found to be twice more likely to practice BSE compared to housewives. Similarly, women belonging to lower socioeconomic status were 70% less likely to practice BSE than women of affluent class. Most common reason offered for not doing BSE was that they did not feel it necessary.

Conclusion: Knowledge of breast cancer and screening practices is poor among indexed Sikkimese reproductive women attending tertiary hospital of Sikkim. This poor level of knowledge could potentially contribute to delay in seeking medical help. This is especially true for older women, who have a poor awareness both of the risk factors and the symptoms associated with the breast cancer. There is a crucial need for information on the airwaves and in print, and for education at health centers and local health posts on warning symptoms of breast cancer & various methods of screening for breast cancer, including BSE.

Prevalence of premenstrual dysphoric disorder and its relationship with quality of life in college students

Vatsala Sharma, Geeta Soohinda

Department of Psychiatry, Sikkim Manipal Institute of Medical Sciences

Introduction: Premenstrual dysphoric disorder (PMDD) consists of a group of predominantly psychological and some somatic symptoms during the luteal phase of the menstrual cycle, which disappear by the end of menstruation. Women with PMDD experience higher levels of daily and traumatic life stress as well as symptoms that are emotionally, behaviorally and physically disabling. Therefore, there is a need for the public and clinicians to have a greater understanding of this syndrome. In India, very few studies have been done regarding PMDD in college students, which further increase the importance of this research.

Ms. Vatsala Sharma,
MD Psychiatry Scholar

Materials and Methods: Consent was taken from 600 female students, belonging to 18-24 years, who were pursuing MBBS, BSc Nursing and Bachelor of Physiotherapy (BPT) course. For the study, candidates were administered Premenstrual Screening Tool (PSST), Patient Health Questionnaire-9 (PHQ-9) and WHO Quality of Life BREF (WHO QoL BREF) in their respective classrooms. Minitab 17 was used for statistical analysis.

Results: Among the study sample, prevalence of Premenstrual Syndrome (PMS) was 28.59%. Premenstrual Dysphoric Disorder (PMDD) was present in 4.36% and depression (PHQ Score> or= 15) in 9.05% of study population. Mann-Whitney Test showed significant association of Physical Health (p=0.000), Psychological Health (p=0.000), Social Relationships (p=0.0027) and Environment (p=0.0337) with PMDD. Ordinal Logistic Regression predicted significant association of Overall Quality of Life (p=0.000), Overall health related Quality of Life (p=0.000) and negative feelings (p=0.000) with PMDD.

Conclusion: There is a major effect of PMDD on physical, psychological and environmental domains as well as on overall and health related quality of life. The identification of the link between PMDD and impaired quality of life emphasizes the need of developing preventive interventions as well as adequate treatment measures to prepare these women for the challenges they experience on a monthly basis and make the arduous journey in future less taxing.

Nasio Facial Anatomy of Meitei Males of Manipur: An Inter-Generational Comparison

Thoudam Bedita Devi, S. Jibonkumar Singh[2]

Department of Anatomy[1], Sikkim Manipal Institute of Medical Science

Introduction: Human face which forms the front aspect of head extending vertically from chin located inferiorly at the base of the mandible and superiorly up to the hair line, and horizontally on both sides up to the auricle is in fact the most important anatomical part of human body that helps in accurate personal identification. Anatomical features of human face show variation between individuals within the population as well as amongst the populations, thus leading to the fact that each and every individual on this globe has his own unique facial anatomy distinguishing

Ms. Th. Bedita Devi,
Tutor & Ph. D scholar

from others. Such an important feature however, is not static in nature but subject to diachronic change because of the impact of environmental factors as well as ageing process. Steered by this fact, the present study aims at mapping the nasio-facial features of the Meitei population of Manipur, India on one hand and examine if there has been any diachnonic inter-generational change taking place during the time span lapse between two successive generations on the other.

Materials and Methods: For the purpose of present study, two nasal characters viz. Nasal Length and Nasal Breadth; three facial characters viz. Morphological Facial Height, Morphological Upper Facial Height and Breadth of the Bizygomatic Arch were measured employing the technique laid down by Weiner and Lourie from randomly selected 100 Meitei male adults from 14 villages of Bishnupur district of Manipur. Based on the data three relevant indices viz. Nasal Index, Morphological Facial Index, and Morphological Upper Facial Index were also calculated. The collected data were subjected to appropriate statistical treatment for a meaningful interpretation.

Results and Discussion: The findings of the data reveal that facial Anatomy of the Meitei males are characterized by Morphological Facial Height, Morphological Upper Facial Height and Breadth of the Bizygomatic Arch having a dimension of 11.58 ± 0.058 cm, 6.59 ± 0.044 cm and 13.28 ± 0.07 cm respectively. As regards nasal anatomy the mean value of Nasal Breadth and Nasal Length are 3.89 ± 0.03 cm and 4.93 ± 0.03 cm respectively. Based on the findings it is observed that there is a positive secular trend of increasing dimension of Nasal Breadth, Morphological Facial Height, Morphological Facial Index, and Morphological Upper Facial Index while a negative secular trend of decreasing dimension of Breadth of Bizygomatic Arch. Analysis of the facial and nasal shape reveals a tendency of change from mesoprosopic to leptoprosopic facial morphology and a slightly increased mean value of nasal index in the present population as compared with the previous generation. These observed factual findings besides having importance in human evolutionary understanding would certainly have clinical applications and significance in forensic and nasio-facial surgery.

The effect of action observation training versus motor imagery training to promote upper limb function in sub-acute stroke subjects: A randomized clinical trial

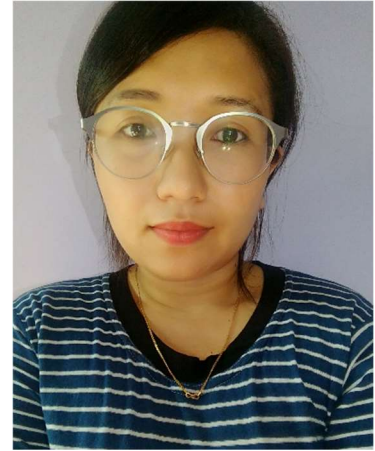Renu Gurung, Priyanka Singh, Deepanjali Rai,

Sikkim Manipal college of Physiotherapy

Introduction: Action observation training (AOT) and Motor imagery (MI) training has been used in rehabilitation of stroke subjects. AOT is defined as observation of action performed by others and MI training which is cognitive process of imagining movement of one's own body part. Thus, this study analysed effects of the action observation and motor imagery training in upper limb function of patients with sub-acute stroke.

Ms. Renu Gurung,
Master of Physiotherapy
Scholar

Methods: A total of 40 sub-acute stroke subjects were randomly assigned to either AOT (n= 20) or in MI group (n = 20). The AOT group (15 men, 5 women; mean age = 57.5 years) received training of 30 minutes/session, 5 times/week for 3 weeks. Subjects were asked to watch the video and then attempt to perform the same movement task after watching. The MI group (11 men, 9 women; mean age = 61.5 years) received training of 30 minutes/session,5 times/week for 3 weeks where the subjects had to mentally practice and perform the same movement after watching the videos. Subjects in both the group underwent subject specific conventional therapy. The outcome measures were evaluated at pre- and post-intervention by using the Fugl-Meyer assessment-upper extremity (FMA-UE), Action research arm test (ARAT), Box and block test (BBT).

Results: GLM repeated measures ANOVA i.e. time x group factor analysis showed statistically significant improvement in FMA-UE (p=0.005), the BBT (p = 0.009) whereas the time x group factor in ARAT (p = 0.255) did not show any significance.

Discussion: Although both the group showed improvement over time but treatment duration of AOT provided an added benefit in both FMA-UE and BBT when compared to MI. So, AOT can be considered as simple, cost effective and better method used for stroke rehabilitation.

Effectiveness of self-instructional module on knowledge regarding Attention Deficit Hyperactive disorder among primary school teachers in selected schools of Gangtok

Lireni C Tungoe, Prerna Karki, Arkie R Shadap

Sikkim Manipal College of Nursing

Introduction: Attention Deficit Hyperactive Disorder is a common behavioural disorder that affects about 10% of school age children. About 7% children worldwide have Attention Deficit Hyperactive Disorder. In rural India population the prevalence of Attention Deficit Hyperactive Disorder is 3.66%. The main aim of the study was to find out the effectiveness of self-instructional module on Attention Deficit Hyperactive Disorder.

Ms. Lireni C Tungoe, SMCON

Method: Pre-experimental research design was adopted by the researcher for the present study. Seven schools were selected through simple random sampling and by using purposive sampling technique, 80 primary school teachers were selected. Pretesting and reliability of tool was done after validation. Structured knowledge questionnaire was used to assess the knowledge of primary school teachers on Attention Deficit Hyperactive Disorder. Data was collected before and after administration of self-instructional module.

Result: The findings reveal that majority 60% of primary school teachers had average knowledge in the pre-test and 86.25% had good knowledge in the post-test. The calculated paired "t" test value t=11.259 was found to be statistically significant at p< 0.05 level.

Discussion: The study concluded that educational material, self-instructional module helped the teachers improved their knowledge on Attention Deficit Hyperactive Disorder which is very important for early identification of disease. It also helps teacher to manage and handle children with Attention Deficit Hyperactive Disorder effectively in the classroom. The study also suggested that teachers must be trained periodically regarding childhood behavioural problems in order to identify those students and take corrective actions which will aid in better classroom management.

Study of Genetic Polymorphism in Patients with Diabetic Nephropathy in Sikkim

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[1] Department of Medical Biotechnology, SMU; [2] Department of Medicine, SMIMS; [3] Department of Biochemistry, SMIMS; [4] Central Lab, CRH, SMIMS

Introduction: Diabetic nephropathy (DN) is the most common cause of end stage renal disease. About 30–40% of all diabetic patients develop nephropathy. Therefore, early identification of this chronic complication is of utmost importance for its better management. Microalbuminuria is a widely used indicator for diabetic nephropathy, however, it has limited sensitivity and less specificity. Therefore, sensitive and specific biomarkers that can predict patient's susceptibility to diabetic nephropathy are needed to be identified. Oxidative stress is a key participant in the development of DN. Myeloperoxidase (MPO) is a lysosomal enzyme that

Mr. Rajit Mullick,
M.Sc.,
Biotechnology Scholar

enhances oxidative stress. It can be hypothesized that genetic polymorphism of this enzyme can reduce the risk of nephropathy in Diabetes Mellitus (DM) patients, and the wild type can be considered as susceptibility marker for DN.

Methods: Before initiation, the study was approved by Institutional Ethical committee of SMIMS. Patients with type 2 diabetes visiting Central Referral Hospital are included in the study. DM patients with nephropathy were identified by urine sample analysis. Blood samples were taken from the patients. Written consent was collected from each participant. Identification of genetic polymorphism following DNA isolation from blood by PCR-RFLP method were further analysed.

Results and Discussion: Out of 12 DM patients studied, 8 patients (67%) were females and 4 were males (33%). Proteinuria was present in 50% of the participants. Results of polymorphism study will be presented in poster.

A study on patterns of caffeine use and its relationship with sleep quality among college students

Kanika Gupta, Geeta Soohinda

Department of Psychiatry, Sikkim Manipal Institute of Medical Sciences

Introduction: Caffeine is among the most widely consumed socially acceptable psychoactive performance enhancing drug which helps in combating sleepiness. It is a common component of tea, coffee, cocoa, soft drinks and energy drinks and its consumption has been increasing considerably. At dietary doses, caffeine has the potential to increase latency to sleep, and it has been reported that many adolescents actively employ caffeine to forestall sleep during night time leisure activities, including use of electronic devices and also during exams. Thus, caffeine uses and disrupted sleep patterns, independently and in combination, may negatively affect academic

Ms. Kanika Gupta,
M.B.B.S (Year 3)

performance. Thus, the aim of this study was to identify pattern and expectancies of caffeine consumption and to determine its relationship with sleep quality among college students.

Materials and methods: This was a cross sectional descriptive study done in the form of online survey among medical students. The survey included questions on socio-demographic data and daily consumption of caffeine. Caffeine Expectancy Questionnaire was used to assess expectancies of psychological and physical effects of caffeine i.e dependence, work enhancement, appetite suppression, mood enhancement, physical performance enhancement, negative physical effects and sleep disturbance. Pittsburgh Sleep Quality Index was used to assess sleep quality within the past month.

Results: 203 students participated in the study. 52% (n=105) reported regular use of caffeine, 6.9%(n=14) reported experiencing withdrawal symptoms and 15.76% (n=32) reported craving. Instant coffee, tea, coke, chocolate, cold coffee and ice cream were most common form of caffeine consumption with average daily intake of 285.8gms (SD $\pm$ 398.7). Males showed significantly higher expectancy scores for dependence, physical performance enhancement and relief from negative physical effects compared to females. Caffeine dependence was significantly associated with poor sleep quality (r_s= 0.244, P = 0.003)

Discussion: To the best of our knowledge this is the first study in India done to explore the patterns of caffeine use among college students. We found a high number of students regularly use caffeine. Compared to females, males used caffeine more for relieving negative effects, increasing performance and to manage withdrawal symptoms making them more vulnerable for use of other psychoactive substances like alcohol and nicotine. Since caffeine affects the sleep quality of students, more awareness is needed to prevent the harmful effects of excessive caffeine use among this vulnerable population.

The study of sacral hiatus in dry human sacra

Sabin Poudel, Pranoti Sinha, Karma L Bhutia, Polly Lama

Department of Anatomy, Sikkim Manipal Institute of Medical Sciences

Introduction and objectives: The sacral hiatus is the site for caudal epidural anaesthesia during perineal surgery and also for a painless delivery. It is also used for three dimensional colour visualization of lumbosacral epidural space in orthopaedic practice for diagnosis and treatment. Past studies on the morphological status of sacral hiatus is limited to few demographic regions. Thus, this study was conducted to examine, measure and record the morphometry of sacral hiatus and to analyse it for any anatomical variations with clinical implications.

Mr. SabinPoudel,
M.Sc., Anatomy
Final Year

Material and Methods: 70 dry sacra with complete sacral hiatus were taken for the study. The shape of the sacral hiatus was noted by naked eye. Level of the apex and base of the sacral hiatus was noted with respect to the sacral vertebra. The length of sacral hiatus was measured from apex to the midpoint of base, the anteroposterior depth of sacral hiatus at the apex was measured with the help of vernier calipers. The transverse width of sacral hiatus or inter-cornual distance at the base was measured between the inner aspects of inferior limit of the sacral cornu with the help of divider and calculated with a vernier caliper.

Results: In 35 (50 %) sacra, the shape was inverted-U and in 18 (25.71 %) sacra inverted-V. Non uniform irregular shaped of sacral hiatus was observed in 8 (11.42 %) cases while a dumbbell shaped sacral hiatus was observed in 4 (5.71%) cases with a nodular bony growth projecting medially from both margins. Absence or complete agenesis of sacral hiatus was a rare phenomenon and observed in 3 (4.28%) specimens only.

Conclusion: In the present study, inverted-U shaped sacral hiatus and narrowing of the sacral canal at apex of sacral hiatus was found in a significant percentage, and this could be important clinically while giving the caudal anaesthesia. A variability in shapes of the sacral hiatus also suggest a underlying genetic factor behind its occurrence.

A comprehensive assessment of medical professionalism among college students

Aishwarya Mishra, Harshvardhan Sampath

Department of Psychiatry, Sikkim Manipal Institute of Medical Sciences

Introduction: Medical professionalism is a collection of attitudes, values and behaviors that act as the foundation of the physician's contract with society and is central to the ethical practice of medicine. In recent times, this has come under intense scrutiny by the public. Despite efforts by regulatory authorities to instill high levels of professionalism among its practitioners, reports of unethical practice are reported almost every day. In response to this criticism, there has been renewed recognition by medical organizations of the importance of biomedical ethics. Research has suggested that professionalism needs to be taught formally to students starting right from their entry to medical college rather than expecting them to absorb and inculcate it after their degree. The present study aimed to study the various facets of medical professionalism among undergraduate medical students.

Ms. Aishwarya Mishra, M.B.B.S Year 3

Materials & Methods: The study was descriptive and cross-sectional in design carried out on MBBS students of SMIMS who provided their informed consent. Professional Decisions Values Test (PDV), Professionalism Assessment Scale (PAS), Trait Emotional Intelligence Questionnaire, Cynicism in Medicine Questionnaire and Barry challenges to Medical Professionalism Questionnaire were used to assess various facets of medical professionalism.

Results: 189 MBBS students participated in the study. The mean age of the sample was 20.82 years (SD 1.81). 74.6% were female. 82.01% had no formal exposure to medical ethics classes. The students generally displayed good ethical decision making in the PDV and Barry Questionnaire. However, areas like conflict of interest, confidentiality involving minor and physician-assisted suicide were scored unsatisfactorily. Students responded favorably to all the domains assessed by the PAS. The emotional intelligence (EI) of the sample was just above average. There were overall high levels of medical cynicism in our sample, which was highest in final year compared to the first year.

Discussion: Overall the levels of professionalism of the students were satisfactory, given that a majority of them have not been exposed to biomedical ethics in their curriculum. We found more than an acceptable knowledge of ethical dilemmas among students. However, low levels of emotional intelligence and high levels of medical cynicism are worrisome. Professionalism is gradually eroding in the battle between market competition of the "health care industry" and ineffective government regulation of health care services. Ethical physicians are falling prey to medical cynicism due to disillusionment in this milieu. We conclude in recommending formal training in biomedical ethics to address this deficiency.

Prevalence of alcohol consumption among women of reproductive age group in urban field practice area of Sikkim Manipal Institute of Medical Sciences

Bemma Konthoujam[1], Vijay Kumar Mehta[1], Sanjiba Dutta[2], Sumit Kar[1]

Department of Community Medicine[1], Department of Psychitary[2], Sikkim Manipal Institute of Medical Sciences

Introduction: Alcohol is a psychoactive substance with dependence-producing properties that has been widely used for centuries as an integral part of many cultures. Alcohol affects women in significantly different ways from men. Consumption of alcohol even in a small amount among women is capable of inflicting more severe problems over shorter periods of time. The main aim of this study was to objectively assess the variables and reasons behind consumption of alcoholic beverages.

Dr. Beema Konthoujam, MD scholar,

Methods: A community based descriptive cross-sectional study was conducted, enrolling 60 women of reproductive age group (15-49 years) from urban field practice area of Sikkim Manipal Institute of Medical Sciences, Gangtok. Information was collected using predesigned, pretested questionnaires and AUDIT (Alcohol Use Disorders Identification Test) by WHO. The data were entered in Microsoft excel spread sheet and analysis was done in SPSS full version 22.

Result: The mean age of study population was 28.9 ± 8.2 years. The prevalence of alcohol consumption was found to be 41 % in the study population. The common type of alcoholic beverages used are wine (38.4%) and beer (23%). Friends were mainly responsible (76.9%) to the introduction of alcohol among those who consume. The main reasons for drinking was due to social customs (57.6%) and stress (38.4%). The mean AUDIT score among those who consume alcohol is 5.46 ± 6.1. The hazardous and dependence pattern of drinking were observed in 19.2 % and 3.8% of the study population respectively.

Conclusion: There is an increase in prevalence of alcohol consumption in the study population. Friends, social customs and stress seem to play a major role in initiation of alcohol consumption among women residing in urban field practice area of SMIMS.

Increasing Excretory Microalbumin and Protein-Creatinine ratio according to age in hypertensive nephropathy

Esha Sarkar, Sameer Bhandari, Sonam C. Bhutia

Department of Biochemistry, Sikkim Manipal Institute of Medical Sciences

Introduction: Hypertension is continuously increased blood pressure in the blood vessels. BP is the force of blood vertically against the arterial walls during the carriage of it from heart. It does not show any symptom at the early stages. High blood pressure is severe health problem caused cardiovascular disease, arterial blockage, brain hemorrhage, vision loss, cardiac arrest and finally in as long tern effect chronic kidney disease. The risk of chronic kidney disease (CKD) and end-stage renal disease (ESRD) increases due to the age of the population, including hypertension. Hypertensive nephropathy is a kidney disease that occurs as a result of gradually

Ms. Esha Sarkar,
M.B.B.S (Year 3)

increasing blood pressure in the renal arterial walls, causes the damage to the vasculature of the kidney (glomeruli, interstitial tissues etc.). The hypothesis of this study was to determine the increase excretion of Microalbumin and Protein-Creatinine ratio according to the age in hypertensive nephropathy in patients visiting central referral hospital (CRH).

Methods: The urine sample of the Hypertensive patients were collected who were suffering from more than 6 years, excluding Diabetic and Chronic Heart Disease. Samples were collected from CRH OPD or from In-Patients.

Results: According to our study we found that the excretion of Microalbumin and Protein-Creatinine ratio increases as the age of the patient gradually increases. This increment speeds up after 60 years, and the results supports our hypothesis.

Conclusions: Microalbumin generally is not present in normal urine sample (<20mg/L). Depending on the concentration of microalbumin we can determine if the patient is suffering from early symptoms of kidney disease, CKD, ESRD, end organ damage or as a risk factor of kidney disease. As the excretion rate increases with age, it indicates risk in elderly individuals and need for treatment like Dialysis.

Correlation between thyroid hormone levels with severity of alcoholic liver disease

Rishab Mahajan, Rachna Lamichaney

Department of Pathology, Sikkim Manipal Institute of Medical Sciences

Introduction: Liver, is vulnerable to a wide variety of metabolic, toxic, microbial, circulatory, and neoplastic insults. Major common diseases include viral hepatitis, non-alcoholic fatty liver disease, alcoholic liver disease, and hepatocellular carcinoma. Thyroxine and tri-iodothyronine regulate the basal metabolic rate of all cells including the hepatocytes, and thereby modulate hepatic function. Therefore, the main aim of this study was 1) To observe the derangements of thyroid hormones in patients with alcoholic liver diseases, 2) To find the co-relation between thyroid hormones, liver function tests and severity of alcoholic liver disease.

Mr. Rishab Mahajan,
M.B.B.S, Year 3

Methodology: This study was carried at Central Referral Hospital, Sikkim. All alcoholic liver disease patients were evaluated clinically. The biochemical and radiological parameters were noted along with other relevant findings. A consent was taken from all the patients regarding the study. 5ml of fasting blood sample was collected from each patient, the serum was separated by centrifugation and thyroid function tests done with Enzyme linked fluorescent Assay.

Results: Increase in total bilirubin level in the serum was directly linked with decrease in T3 in the serum. Direct bilirubin is more deranged than total bilirubin levels in the serum (96.2% patients have increased direct bilirubin level whereas 70.04% patients have increased Total bilirubin level). Patients with both decrease T3 and increase TSH levels accounted for only 44.4% of the subjects. In patients with Fatty liver, the decrease in T3 level are less than those compared of patients with CLD (chronic liver disease). Serum T3 was lowered significantly with the increasing severity of the disease whereas serum T4 level was not significantly reduced. 37.03% of all the patients were diagnosed with ascites, out of which 70% had decreased T3. The patients presenting with complications like Hepatomegaly, Splenomegaly, had more severe derangements with reference to the thyroid hormones.

Conclusions: In patients with Alcoholic liver disease, and its advance stages, there is decrease in T3 levels, or also, as the severity increases from alcoholic liver disease to chronic Liver disease or liver cirrhosis hypothyroidism is more frequent.

Effects of social media network participation on academic performance and social behaviour pattern of adolescent students from selected senior secondary schools of Sikkim

Sushila Sharma, Reshma Tamang, Hissay Lhamu Bhutia

Sikkim Manipal College of Nursing

Introduction: Social media is a group of internet-based application that is built on the scientific foundations for transforming communication between different societies and individuals. It has become a part of everyone's life, and not only the youth but even the children these days are surrounded by interactive social networking site, which makes social media an inevitable aspect of their lives. Thus, the purpose of this study was to identify common social media networking sites and their usage, to find relationship between social media network participation, academic performance and social behaviour pattern of adolescent students.

Ms. Sushila Sharma, SMCON

Methods: Descriptive correlative study was conducted among randomly selected 200 adolescent students of class XI and XII of Senior secondary schools of East Sikkim.

Results: Majority (68%) had high level participation in social media networking site. Facebook (89%) was the most commonly used networking site among the adolescents and the common reason of usage was to clear doubts related to their studies. The correlation between social media network participation and academic performance was found to be border line positive (r_s=0.14 $p<0.05$) but there was no correlation between social media network participation and social behaviour pattern (r_s=-0.016; $p<0.06$). The annual income of the parents associated ($p<0.05$) with social media network participation.

Discussion: The study shows that the usage of social media networking sites and academic performance of adolescent students have a weak positive relationship, and the social behaviour pattern of adolescent students was in no way affected by social media network participation.

A study to assess knowledge regarding home management of patients undergoing hemodialysis at selected hospitals, Gangtok, Sikkim

Sangay Doma Bhutia, Tahi Rani Pangambam, Arkieupaia Shadap

Sikkim Manipal College of Nursing

Introduction: End stage renal disease is a chronic illness which inevitably reduces the lifespan of the patients. The Continuous Ambulatory Peritoneal Dialysis [CAPD], hemodialysis and renal transplant treatment modalities are available but none of these treatments are curative, but they offer symptom relief, extend life expectancy and intended on improving the quality of life. The aim of this study was to assess the knowledge regarding home management of patient undergoing hemodialysis in selected hospitals of Sikkim in five areas i.e. meaning of hemodialysis, management of exercise, management of vascular access, management of diet, fluid and management of complications.

Ms. Sangay Doma Bhutia, M.Sc Nursing

Methods: The study assessed investigators adopted quantitative approach with descriptive survey design where 50 patients from the hospitals were selected by purposive sampling technique. Validated structured knowledge questionnaire were developed to collect the data to assess the knowledge regarding home management of patients undergoing hemodialysis and to establish the association with selected demographic variables.

Result: The findings revealed that majority of patient undergoing hemodialysis i.e. out of 50 patients, 27(54%) patient had average knowledge, 21(42%) patients had good knowledge and 2(4%) patients had excellent knowledge regarding home management of patients undergoing haemodialysis. Knowledge score meaning of hemodialysis was 55.5%, management of exercise was 55%, management of vascular access was 54.6%, management of diet and fluid was 44% and management of complication was 42.4%.

Discussion: The study concludes that majority of the patient had average knowledge, and very few had having excellent information. Therefore, educational material i.e. pamphlets distributed to the patients undergoing hemodialysis provides them with adequate knowledge on at home management following hemodialysis should.

A Cross-Sectional Study on the significance of carrying angle among the students of Sikkim Manipal Institute of Medical Sciences

Sampriti Paul, Pranoti Sinha

Department of Anatomy, Sikkim Manipal Institute of Medical Sciences

Introduction: When the forearm is fully extended and supinated, it diverges laterally forming with the upper arm an 'carrying angle'. The study, which is the first of its kind analyzes the morphological variation in the carrying angle, which may occur as a result of any skeletal adaptation due to habitation in this characteristic landscape of students of Sikkimese origin. This study will also analyse the relation of degree of carrying angle with gender and rationalize its dominance.

Ms. Sampriti Paul, M.B.B.S Year 3

Methodology: The investigators measured carrying angle in healthy subjects who were between 18-25 years of age using Goniometry. The **12" 360^0 Degree Goniometer** device measured the carrying angle of both the elbows. The study subjects were made to stand in anatomical position, with the arms extended and in supine position. The goniometer's measurement plate is placed on the fulcrum of the elbow. The fixed arm of the goniometer is placed on the median axis of the arm (parallel to the shaft of the humerus) and the movable arm is placed on the median axis of the forearm (midpoint of the two epicondyles of the humerus and the midpoint of the styloid processes of radius and ulna). The angle measured represents the carrying angle. The dominance of the subject is also recorded.

Results: The study population includes 34 females and 16 males; and 100 elbows were evaluated. The average carrying angles recorded for males and females were 9.97^0 and 10.48^0 respectively. The carrying angle varied from 0-2^0 in either sex as well in the right and left sides. A greater carrying angle was observed in case of females. A slight increase in the carrying angles of the right side was observed in 92% of subjects who were right handed; and this can be well correlated with dominance.

Discussion: No significant variation of the carrying angle from standard values was found in this study; the study population being small. But the relationship of the carrying angle with sex and dominance could be established; carrying angle being more in females which can be attributed to females having a wider pelvis and carrying angle was found to be more in the dominant arm. According to Wolff's law, a bone in a healthy person will adapt to the loads under which it is placed. Compared to walking in the plain regions, additional muscle actions are required during movement uphill and downhill. The muscles pull on the tendons attached to the bones creates a significant amount of stress on the bones, which results in bone remodelling.

Does a narrow spinal canal dimensions predicts low back pain, or vice-versa?

Andolika Ravi Kannan, Polly Lama

Department of Anatomy, Sikkim Manipal Institute of Medical Sciences

Introduction: Lumbar canal stenosis is one of the major causes behind widespread occurrences of chronic low back pain affecting all ages and sexes. Microstructural changes in the intervertebral disc leads to disc herniation which changes the spinal canal dimensions, along with other attributes such as degenerative changes of the facet joints and hypertrophy of ligamentum flavum. Thus, we hypothesize that sagittal anteroposterior diameter (SAP) and inter-pedicular diameter (IPD) of the spinal canal are mainly compromised in patients with low back pain and disc herniation.

Kanan
M.B.B.S (3rd year)

Materials & Methods: The parameters measured were, the sagittal anteroposterior diameter (SAP) of the lumbar spinal canal as the distance between the midpoint of the superior border of the two laminae and the midpoint of the posterior cortex of the vertebral body. Transverse or the inter-pedicular diameter (IPD) of the vertebral canal as the greatest distance between the inner cortices of the vertebral pedicle. An MRI slice thickness of 5mm were obtained using a SIEMENS scanner at the Central Referral Hospital of SMIMS on a total of 60 patients (30 male and 30 female) with low back pain and 30 controls without any pain or lower back complications.

Results: Mean age group of patients and controls were 40.2 for males and 37.9 for the females. MRI findings revealed that 49 patients had disc herniation at L4-L5 and L5-S1 level with posterior tear of the annulus. 1 female patient showed lumbarization of first sacral vertebrae, 4 female patients had spondylolysis without disc herniation. 10 severely stenotic patients showed disc degeneration with subsequent herniation and evidence of early anterior endplate osteophytes formation involving L1 to S1 vertebrae. The control group comprised of 30 subjects none of whom had any history of back pain requiring medical treatment. Measurement on the MRI images showed that SAP diameter varied significantly among the control and patients ($p<0.05$) from L1 to L5 levels, while IPD diameter changes were not uniform. Hence, results indicate spinal stenosis causes narrowing of the SAP diameter in comparisons to IPD.

Discussion: This study shows that patients with low back pain had spinal canal stenosis and disc herniation that contributed to narrower SAP dimensions. This study also suggests that low back pain occurrence were limited to disc herniation patients mainly, whose spinal canal dimension narrowing may have occurred due to environmental risk factors or these patients had genetic inheritance for weaker tissue making the disc tissue prone to disruptions.

A study of early treatment adherence and its relation to perceived stigma and medication side effects in patients with depression

Aproova Upadhyay, Geeta Soohinda

Department of Psychiatry, Sikkim Manipal Institute of Medical Sciences

Introduction: Depression is a common treatable disorder, which continues to remain under detected in the primary care settings. Studies indicate that lifetime prevalence of all depressive disorders taken together is over 20%, that is one in five individuals. If current trends continue, it will become the leading cause of disease burden by the year 2030. In our society, stigma towards mental illness plays a major role in utilization of mental health services. Other important factor involved in treatment non-adherence is medication side effects. The aim of this study was to test the correlation between level of stigma towards depression and side effects of antidepressants with early treatment adherence towards antidepressants.

Dr. Aproova Upadhyay, MD Psychiatry, Scholar

Materials and Methods: This was a hospital based follow up study. A total of 105 patients (Male-41, Female- 64) suffering from moderate to severe depression who consented for the study were selected. They were followed up for next three months. Stigma towards depression was assessed by Depression stigma scale, side effects of anti-depressants were assessed by Toronto side effect scale and Morisky Medication Adherence Scale was used for assessment of adherence. Mann Whitney U test was used to find association between stigma and adherence. Chi- Square Test was used for association between medication side effects and medication adherence. Mini tab17 software was used for statistical analysis.

Results: The mean age of study sample was 39.52 years. Mean MADRS score was 31.286(SD-5.619, CI- 30.198-32.373). Stigma [Mean personal stigma score-19.048 (SD- 6.724, CI- 17.746-20.349) and Mean perceived stigma score-26.238 (SD-6.249, CI-25.029-27.447)] towards depression was found to be strongly associated with high non-adherence rate for antidepressants. No significant association was found between presence of side effects and adherence, which was measured using Pearson's chi squared test.

Conclusion: One of the most important factors associated with adherence is stigma. Patients are concerned about the prejudices of those around them and often deny their disorders and delay seeking or starting adequate psychiatric care. For reducing the morbidity and burden of depression it is important to address stigma towards depression.

Knowledge and Attitude on prevention of cervical cancer among women residing in urban and rural community in Sikkim

Brahmacharimayum Sushittra Devi, Ranjita Devi, Binita Devi

Sikkim Manipal College of Nursing

Introduction: As per National Institute of Cancer Prevention and Research (NICPR) 2017, cervical cancer is the second most common cancer in India in women accounting for 22.86% of all cancer cases reported in women's. Thus, the study was conducted to assess the awareness of cervical cancer in urban and rural community in Sikkim.

Ms B. Sushittra Devi, M.Sc., Nursing Scholar

Methods: Research design adopted was descriptive comparative survey design, the samples techniques used was simple random sampling. A total of 200 women aged 15 years and above were participated in the study. Tools used for data collection were structured knowledge questionnaire and attitude rating scale. Data were analysed using descriptive and inferential statistics.

Results: From urban population 25(25%) of the respondents have good knowledge, 72(72%) have average knowledge, 3(3%) have poor knowledge on prevention of cervical cancer. With regard to attitude, 99(99%) of the urban respondents had favourable attitude. And, from rural population 13(13%) of the respondents have good knowledge, majority 82(82%) have average knowledge and 5(5%) have poor knowledge. With regard to attitude, 100(100%) of the rural respondents had favourable attitude. The study reveals that the urban women had more knowledge than rural women with p value < 0.01. There was no significant difference found in attitude score between the urban and rural women with p value of 0.074.

Discussion: The study found that both the urban and rural women have average knowledge on prevention of cervical cancer and both the community showed favourable attitude regarding prevention of cervical cancer. Therefore, as a health care professional educating woman at an early age and promoting awareness about risk factors and preventive measures for cervical cancer will reduce maternal mortality rates and improve the quality of lives of women in our country.

Histological features of intervertebral disc from patients with severe degeneration and pain

Jerina Tewari, Polly Lama

Department of Anatomy, Sikkim Manipal Institute of Medical Sciences

Introduction: The intervertebral disc is a heterogeneous white-fibro cartilaginous structure that contribute towards flexibility and even load support in the spine. It is the largest avascular and aneural structure in the human body, hence has a poor ability to heal. Intervertebral disc degeneration leads to low back pain in both younger and older individuals. The chief components of the intervertebral disc in the outer annulus fibrosus is type I collagen fibres and the nucleus pulposus is the hydrating proteoglycan gel held together by a loose network of collagen type II fibrils. The discs show three types of cell population, chondrocytes-like cells in the nucleus pulposus, rounded cells in the

Ms. Jerina Tewari, Ph.D Scholar

inner annulus fibrosus and fibroblast-like cell in the outer annulus fibrosus. Cellular senescence and extensive morphological changes contribute towards progressive tissue failure resulting in disc degeneration. Therefore, the main aim this study was to characterise the features associated with disc degeneration with histological techniques.

Methods: Surgically removed degenerated disc samples were collected from North Bengal Neuro Science Centre, Siliguri and non-degenerated cadaveric disc samples were collected from the department of anatomy. 12 pathological and 10 cadaveric intervertebral disc samples were then paraffin fixed and stained in haematoxylin & eosin and toluidine blue stains. The observations were made in microscope under 10X and 40X respectively.

Results: Various alterations were seen in the pathological intervertebral disc sample as compared to the non-degenerated 'control' cadaveric disc samples, these changes are as follows:

- Increased clusters of cells could be seen in the degenerated disc samples.
- Changes in the orientation of the collagen fibers, indicating inflammation was apparent.
- Blood vessels and inflammatory cells could be seen in disrupted tissue.
- Loss of proteoglycans was evident in degenerated disc.

Discussion: Region of disrupted collagen lamellae show changes during disc degeneration. The degenerated disc also shows ingrowth of the blood vessels. Changes in the intervertebral disc cellularity such as cell apoptosis, cell senescence and increase level of nutrient supply may have led to the formation of cell clusters. These various alterations in the phenotype of pathological sample pose as confirmed histological changes seen during severe degeneration of the discs.

Effect of Yoga (Unilateral Nostril Breathing) on Autonomic Nervous System Activity in Medical Students

Pulkit Mutreja, Bhawana Thapa

Department of Physiology, Sikkim Manipal Institute of Medical Sciences

Introduction: The ancient Indian science of Yoga makes use of voluntary regulation of breathing to make respiration rhythmic, and to calm the mind. This practice is called Pranayama. The nasal cycle is dependent upon tonic activity of the limbic autonomic nervous system. Recent studies have reported differential physiological and psychological effects produced by exclusive right and left nostril breathing. The present study observed the changes in diastolic blood pressure (DBP), systolic blood pressure (SBP), mean arterial blood pressure (MAP), respiratory rate (RR) and heart rate (HR) and to find out whether these parameters are influenced by the practice of Unilateral Nostril Breathing (UNB).

Mr. Pulkit Mutreja, M.B.B.S, 3rd Year

Methods: This study was interventional and cross-over, and it was conducted for a period of two months on 50 consenting first year MBBS students studying at SMIMS and residing in the student hostels. The study was performed in 3 phases at the Yoga Lab of Department of Physiology, the participants were divided into 2 equal groups of 25. One group was made to practice right UNB and the other, left UNB. In Phase I, the mentioned parameters were recorded without any intervention to establish a baseline control. In Phase II, the participants practiced the UNB for 5 minutes and the parameters were recorded again to establish the immediate effect of UNB. In Phase III, the participants practiced the UNB for 2 months (10 minutes/day) and the parameters were then recorded to establish the short-term effect of UNB practice.

Result and Discussion:

Right UNB: There was a statistically significant rise in the SBP ($p < 0.05$) from 117 ± 8 mmHg (no RUNB practice) to 124 ± 10 mmHg after 2months of right UNB practice. There was also a statistically significant rise in the HR ($p < 0.05$) from 81 ± 10 beats/minute (no RUNB practice) to 88 ± 14 beats/minute after 1month right UNB practice. Changes in other parameters did not hold statistical significance.

Left UNB: Changes in none of the parameters were statically significant.Thus, with increase in SBP and HR it can be understood that breathing unilaterally through the right nostril (Right UNB) does cause arousal of the sympathetic nervous system. We conclude that yogic breathing techniques should be practiced after proper training and under due supervision to ensure any adverse effects relating to improper yogic exercises can be minimized.

Severity of acute mountain sickness and associated symptoms in people trekking on North Sikkim, Changu as hospitalized patients

Rajas Gandhi, Parvati Nandy

Department of Medicine, Sikkim Manipal Institute of Medical Sciences

Introduction: Acute mountain sickness (AMS) occurs in non-acclimatized people after an acute ascent to an altitude of 2,500 m or higher. The aim of this study was to examine the severity of AMS and associated symptoms in hospitalized patients.

Methods: The retrospective study included 12 non-acclimatized people, who went on trip from Gangtok to North Sikkim and Changu. We used the Lake Louise Score (LLS) to diagnose AMS and to record AMS-associated symptoms.

Results: There were subjects who stayed for 3 days at high altitude. The overall severity which was higher in males and in subjects with a higher body mass index (BMI). The prevalence of AMS on Day 1 was 25%, which was significantly lower than that on Day 2 as 50% and Day 3 as 25%. The overall incidence of severe AMS (LLS $\geq$ 5) was 49.93 %. The mean LLS of the AMS (3.02 $\pm$ 2.46), the mean LLS was 1.00 $\pm$ 1.55 on Day 1, 4.09 $\pm$ 1.97 on Day 2, and 3.98 $\pm$ 2.42 on Day 3. The most common symptom was sleep disturbance followed by dizziness, and headache. The prevalence of headache was 46.2% on Day 2 at 3,100 m, and 31.3% on Day 3. Males experienced significantly more headache and fatigue than females. The incidence of HAPE AND HACE in hospitalized patients was 33.3% and 8.3% respectively.

Conclusion: In hospitalized patients 33.33%. AMS had HAPE and 8.3% had HACE, 8.3% had other serious life-threatening complications, sickle cell trait patient suffered from sickle cell crisis at high altitude. Gender (male) and a higher BMI could be considered two independent risk factors of higher AMS incidence. Sleep disturbance is the most common symptom.

Dr. Rajas Gandhi
MD Medicine Scholar

An anatomical study of dorsalis pedis artery and its clinical correlation

Anjusha Das, Binod Tamang, Pranoti Sinha

Department of Anatomy, Sikkim Manipal Institute of Medical Sciences

Introduction: The main function of the foot is to support the body during locomotion and quiet standing. Dorsalis pedis artery is the main source of blood supply to the foot and is routinely involved in palpation of peripheral arterial blood pressure. Further to evaluate patients with arterial disease, palpation of peripheral arterial pulse is essential. In lower limb, palpation of dorsalis pedis artery is also used to evaluate the occurrences of vaso-occlusive diseases. Thus, knowledge about the origin, course and branching pattern of this artery is essential, as it forms the stem for one of the major myocutaneous flaps used for ankle surgeries in plastic and reconstructive surgeries. The aim of this study was to observe the variation of dorsalis pedis artery, it's different branching pattern and related clinical disorder.

Ms. Anjusha Das,
M.Sc.,
Anatomy Scholar

Methods: Thirty free lower limbs were dissected and the origin, course and branching pattern of dorsalis pedis artery were studied. These free lower limbs were procured from the Department of Anatomy, Sikkim Manipal Institute of Medical Science (SMIMS).

Results: In present study, there was complete absence of dorsalis pedis artery in 10% of the cadavers and absence of arcuate artery with variation in the origin of 2nd-4th metatarsal artery is 10%.

Conclusion: This artery serves as an important landmark on the dorsum of foot. The artery is recognized to play an important role in micro vascular surgery of the foot during replantation's. Knowledge of this variation will be useful in deciding whether the absence of pulse in dorsalis pedis artery is due to thrombosis of the vessel or its abnormal course or absence. Aberration of the usual anatomical pattern of origin, branching and anastomosing pattern are thus of prime importance in surgical operative techniques. Prior confirmation by angiography for any abnormalities will avoid unnecessary surgical risks.

Social comparison on social networking sites (SNS) and its relation to psychological well-being among young adults

Kartikeya Ojha, Geeta Soohinda, Sanjiba Dutta

Department of Psychiatry, Sikkim Manipal Institute of Medical Sciences

Introduction: The use of social networking sites has increased exponentially in the last few years especially among young adults in India. The content on social media about one's own profile and that of others makes social comparison easier among young adults. Research on SNS has shown that social media has both positive and negative effects on mental health. Social comparison, in general leads to poor self-esteem and unhappiness and dissatisfaction. However there are only a few studies on social comparison and its effect on mental health of college students who form the most vulnerable group. This study aimed at 1) finding out the relationship between social comparison on online platform, self-esteem and depression 2) Pattern of social networking site use among young adults.

Mr. Kartikeya Ojha
M.B.B.S 1st Year

Methodology: This was a cross sectional study done among 100 students of Sikkim Manipal University. Data was collected using a questionnaire consisting socio-demographic details, Social comparison scale, State self-esteem scale and depression ,anxiety and stress scale (DASS 21).

Results: The data was collected data from 100 students doing medical (N=79) and paramedical (N=21) course in Sikkim Manipal University. Mean age of the sample was 20(SD±1.14) years. Instagram was most commonly used SNS followed by Facebook. 57% of the students had more than 500 friends on Facebook and 45% had more than 300 friends on Instagram. 26% checked their accounts frequently in a day while 67% checked it at least once a day. 93% spent at least 30 minutes on SNS every day. The commonest reasons to use SNS were entertainment(68%), news updates (50%) and communicating with friends (42%).The mean scores on social comparison scale was 30.93(SD± 6.34). The mean scores for state self-esteem were social- M=25.99(SD± 5.63) ,performance-M= 24.68 (SD±5.16) and appearance-M= 20.5(SD±4.14). Social comparison on SNS had significantly negative correlation with all the three domains of self-esteem. Social comparison scores were significantly associated with depression, anxiety and stress scores in the subjects.

Discussion: Instagram appears to be the most commonly used online social network among college students. We found that young adults indulge in social comparison on online platform since it's an easier and a faster way to connect to others and compare themselves with others. Social comparison had significant negative affect on social self-esteem, performance and appearance self-esteem. There was also significant association between online social comparison and depressive and anxiety symptoms. Thus, social comparison may be one of the ways in which SNS affect the mental health negatively leading to significant stress and dissatisfaction among college students. There is a need to recognize and address this problem and develop more positive mental health among this group.

Our vision is to transform
the lives of our students,
through exemplary education
and training, their journey of discovery.

Lt. Gen (Dr.) Venkatesh
Vice Chancellor, Sikkim Manipal University

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