



Kuwait University
Faculty of Allied Health Sciences



13th Student Research Day 2020



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Dean's Message

Dear Students, Staff Members and Colleagues,

It is an honor and privilege to celebrate with you the 13th Annual Student Research Day of the Faculty of Allied Health Sciences. Research is a key component of the academic program at any academic institution. I am pleased to announce that Faculty of Allied Health Sciences has experienced great growth in research activity over the past years. Student Research Day, gives our students an opportunity to display their research skills. Also, it provides an opportunity to share their research experience with the students of other faculties, teachers and the health care professionals in Kuwait. Furthermore, Student Research Day leads to future multidisciplinary collaborative partnerships.



In spite of the pandemic of COVID-19 this year, the Faculty of Allied Health Sciences is proud to note that research is still active and the enthusiasm among the students about research did not fade away.

This event which began about 13 years ago has become an important tradition of our Faculty. Needless to say that the success of this annual event reflects the teamwork of the students along with their teaching staff without whose guidance, advice and support this event would not have been possible.

As the Dean of the Faculty, I take this opportunity to thank Professor Fayez Ayed Al-Dhafiri, Acting President of Kuwait University, all the members of the Organizing Committee for their sincere efforts, administrative staff and all the staff and students of the Faculty of Allied Health Sciences for their sincere contribution for the success of the Faculty of Allied Health Sciences Student Research Day.

I wish all our students great success in their academic and professional life.

Best regards,

Prof. Suad M. AlFadhli
Dean
Faculty of Allied Health Sciences
Kuwait University

Vice Dean's Message

Greetings!

It is indeed an honour to welcome you all to the 13th Annual Student Research Day hosted by the Faculty of Allied Health Sciences. This is my first event since I have taken charge as the Vice Dean of Research & Postgraduate Studies. I had many plans to be incorporated, unfortunately, we are keeping a low profile and have to cancel the live event of the Poster Day due to the untimely death of His Highness Sheikh Sabah Al Ahmad Al Jaber Al Sabah and state mourning of 40 days.



Research is the backbone of science and an opportunity for creating new knowledge. The Student Research Day provides a platform for the students and their mentors to present their research work by sharing their ideas and knowledge. The Student Research Day aims to develop and promote curiosity and creativity, flexibility and openness to new ideas and innovations and to expand new avenues of research for future generations.

I take this opportunity to congratulate all the student researchers for their efforts and diligence in preparing their research. Furthermore, I would like to commend the supervisors and mentors for their sincere guidance and contribution to the success of the Student Research Day.

I sincerely hope that the 13th Student Research Day will be successful in providing an ideal platform to nurture the growth of brilliant researchers who will further assist in the development of services and treatments in scientific medicine, both, for the present as well as the future generations.

Furthermore, I express my sincere gratitude to the Dean, Organizing Committee members of the 13th Faculty of Allied Health Sciences Students Research Day, members of the faculty, the support staff and the Kuwait University Administration for making this year's event a success.

We wish all our students all the very best in their future endeavors.

Best Regards,

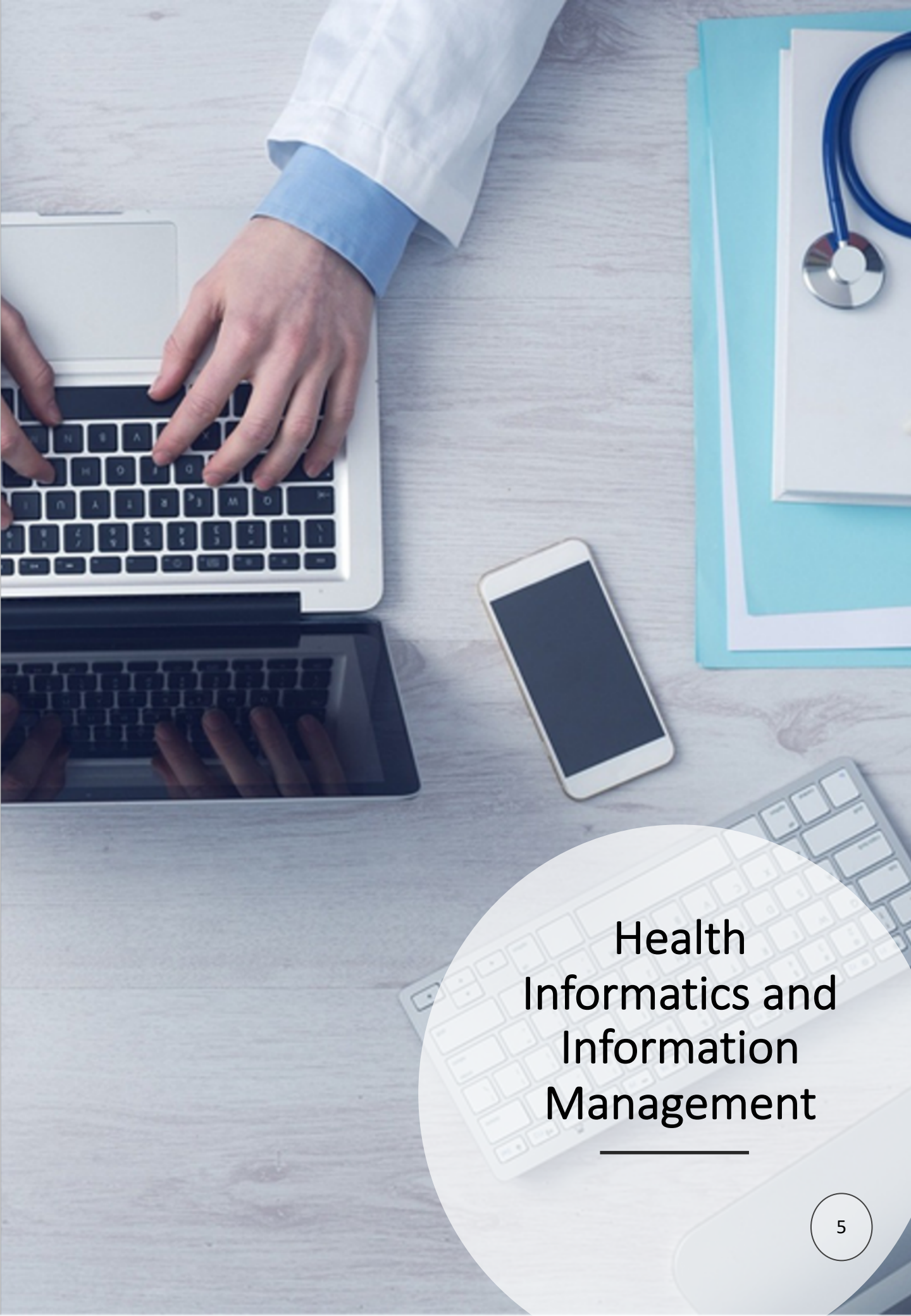
R. Al-Awadhi

Dr. Rana Al-Awadhi

*Vice Dean for Research & Postgraduate Studies
Faculty of Allied Health Sciences*

Organising Committee

Member	Department
Prof. Suad AlFadhli	Dean of Faculty of Allied Health Sciences
Dr. Rana Al-Awadhi	Vice Dean, Research and Postgraduate Studies
Dr. Nouf Al-Ajmi	MLS
Dr. Monera Al-Rukhayes	MLS
Ms. Hanadi Al-Humaidi	HIIM
Dr. Anwar Al-Banaw	MLS
Dr. Mehdi Rassafini	OT
Eng. Zainab Al-Ameer	IT
Ms. Elham Al-Enezi	Public Relations

A top-down view of a doctor's hands in a white lab coat typing on a laptop keyboard. To the right is a blue folder with a stethoscope. Below the folder is a smartphone. In the bottom right, a circular overlay contains the title text.

Health Informatics and Information Management

AWARDED POSTERS

First		
HIIM-6	Shareefa Al-Mutawa	<u>Evaluation of Mobile Diabetes Monitoring Technology Effectiveness and Diabetic Patients Satisfaction</u>
Second		
HIIM-8	Danah Al-Toum, Fatimah Al-Turki, Hanan Al-Ajmi	<u>Compare the quality of cancer registry data by practical, and technical aspects among countries</u>
Third		
HIIM-3	Mothi AlAdwani	<u>Evaluation of patient satisfaction towards telemedicine during COVID-19 pandemic</u>

HIIM ABSTRACTS

No.	Student Name	Title
HIIM-1	Lulowah Al-Saleh	<u>A systematic literature review on documentation of medical discharge summary</u>
HIIM-2	Deemah Alhees, Reem Al-Loghani	<u>The Effectiveness of Managerial Competencies for Health Information Management Department Directors</u>
HIIM-3	Mothi AlAdwani	<u>Evaluation of patient satisfaction towards telemedicine during COVID-19 pandemic</u>
HIIM-4	Batool AlMutawaa, Wadha AlOtaibi	<u>Evaluating the Utilization of Social Network Services (SNSs) for Academic Purposes by Allied Health Students at Kuwait University</u>
HIIM-5	Dalal AL-Zaabi, Maryam Hamaran, Nwayer AL-Hajri	<u>Exploring the Utilization of RFID as Tracking Tool for Patient Record in the Hospitals</u>
HIIM-6	Shareefa Al-Mutawa	<u>Evaluation of Mobile Diabetes Monitoring Technology Effectiveness and Diabetic Patients Satisfaction</u>
HIIM-7	Dana Hussein,Haya Al-Subaiei	<u>Exploring the Relationship between Canadian Accreditation and Patient Satisfaction</u>
HIIM-8	Danah Al-Toum, Fatimah Al-Turki, Hanan Al-Ajmi	<u>Compare the quality of cancer registry data by practical, and technical aspects among countries</u>

A systematic literature review on documentation of medical discharge summary.Lulowah Sami Al-Saleh¹Supervisor: Dr. Maha Al-Nashmi²Presented author: Lulowah Al-Saleh

Student¹ at Health Information and Informatics Management, Allied Health Science, Kuwait
University, Kuwait

INTRODUCTION:

Discharge summaries considered a communication tool between health care facilities and for follow-up visits after hospitalization. Now days, some of general hospitals don't give the discharge summaries its value by incomplete information in the discharge summaries, unavailable copy of it. The benefit of discharge summary may be lost if the physician do not understand what information should be written in it. This literature review will discuss the factors that affect the patients because of lake of understanding of discharge summary documentation.

METHOD:

This research summarizes 41 articles that were preformed between 2009 and 2020. Google scholar and PubMed were used for searching for these articles.

View

Poster

The Effectiveness of Managerial Competencies for Health Information Management Department Directors

Abstract:

Research Questions:

- How can the director's competencies make a difference?
- How can the competency of directors make a change with a positive or negative affect the achievement of goals?
- What extent a manager's competency affects their management practice, the productivity, and the quality of care?
- What are the effects of training managers on management competencies?

Background: Over the past several years, there has been expanding international focus on the assessment of healthcare directors' competencies. Healthcare managers play a vital role in the organization's smooth operation and are collectively accountable for hundreds of high-cost employees, facilities and equipment, and the quality of health care services.

Objective: This study aims to ascertain the skills and the competency levels of the Information Management Department (HIMD) Directors to be affective, to achieve strategic goals by attracting necessary competencies to maintain the competitive position, and to improve the quality of care of and build organizational capacities of human resource also to analyze the effectiveness of training and development program on management competencies.

Method: This is a qualitative systematic review describing managerial competencies for Health Information Management Department (HIMD) Directors in which they need to integrate a range of competencies including good understanding of main managerial tasks such as: planning, organizing, motivating and leading, and controlling. **Inclusion criteria** are between 2010-2020, full text and English language only and **exclusion criteria** are articles that are excluded within the scope of the study will be removed and 16 Articles were chosen

Conclusion: In our study, we found that it is necessary for HIM directors to understand the collection of competencies that is required for his position. Also, developing training programs enhances the skills required to reach the objectives.

Keywords: managerial competencies, medical record directors, hospital managers, skills, competencies, managers training.

Deemah Alhees

Reem al-loghani

View

Poster

EVALUATION PATIENT SATISFACTION TOWARDS TELEMEDICINE DURING COVID-19 PANDEMIC

Mothi AlAdwani¹,
Dr. Maha AlNashmi²

Health Informatics and Information Management (HIIM) Department, KU Research Ethical Committee, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

Improving patient satisfaction has become a serious goal including all healthcare settings. Telemedicine can play a crucial role in improving patient satisfaction. The objective of this systematic review is to spot and analyse research examining the effect of telemedicine on patient satisfaction during COVID-19. Two databases were searched: google scholar and PubMed.

METHODS

A systematic review on patient's satisfaction towards Telemedicine during Covid-19, secondary research mechanism to carry out this investigation. This has helped scholar in getting in-depth knowledge about the telemedicine facilities and its relationship with satisfaction of patients.

RESULTS

Telemedicine is the recent trend in the field of health and social care sector. Adoption of telemedicine in the Covid-19 situation has helped the government and medical agencies in order to provide emergency care to patients on immediate bases and provide them guidelines which help them in improving their health condition soon.

DISCUSSION & CONCLUSION

This pandemic has created a mark on society where people understands the need of physical distancing at the same time get quality care services in cost effective manner. Telecommunication medical services protect people by offering them all kinds of medical facilities at their home only.

KEYWORDS:

Telemedicine, Health Information Technology, Covid-19, Medical Applications.

[View](#)[Poster](#)

Evaluating the Utilization of Social Network Services (SNSs) for Academic Purposes by Allied Health Students at Kuwait University

Batool AlMutawaa

Wadha AlOtaibi

Dr. Maha AlNashmi

Health Informatics and Information Management (HIIM) Department, Faculty of Allied Health Science, Kuwait University

INTRODUCTION:

The advancements in technology have altered the society into a global forum influencing the educational processes and learning environments. One of the educational branches that was influenced by this trend of using social media and smart phones for teaching and learning. Facebook, WhatsApp, Instagram, YouTube, and many other applications are the platforms enhancing cooperative learning, superior communication, and knowledge sharing.

STUDY OBJECTIVES:

Measuring and evaluating the utilization of social network services for academic purposes by Allied Health students at Kuwait University. We also will assess the extent of use of social media and the major applications used to improve the educational platform for online teaching.

METHODS:

we have conducted a qualitative cross-sectional study by surveying a sample representing the students and teachers who are sharing course content and materials via social media applications. in Kuwait university. An online questionnaire using Microsoft forms was used. The study was conducted from the period 4th of August 2020 to 30th of August 2020 with a sample size of 102 participants. An online survey designed in Microsoft forms was distributed through Facebook clustered group. The research granted HSC Research Ethical Committee approval on participating in the questionnaire by a question at the beginning of the study about the ability to participate.

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Exploring the Utilization of RFID as Tracking Tool for Patient Record in the Hospitals

Dalal AL-Zaabi, Maryam Hamaran, Nwayyer AL-Hajri

Dr.Maha AL-Nashmi

¹Health Informatics and Information Management/Faculty of Allied Health Sciences, Kuwait University.

INTRODUCTION

Utilization of RFID in the Health Informatics and Information Management Department will facilitate retrieving, receiving and tracking the patient's chart. The RFID, which is Radio Frequency Identification is used to store patient's data, identify, and track the patient charts. The RFID could be integrated with HIS to be as data repository to store all events and data of patients external or internal.

The purpose of this research is to explore mechanism to reduce the number of missing patient charts, reduce costs occurred due to human errors. improve quality of health care, increase productivity, decrease wastes (time- manpower), provide efficient and accurate access to patient's data and to follow the accreditation. Moreover, this research is conducted to show benefits, obstacles of the RFID in the Health Informatics and Information Management Department and find out how efficient is it.

METHODS

This is a systematic review research.

Database used in this research is Google Scholar. The selected articles are focused to the RFID technology as tracking tool for hospital. We reviewed 18 articles through 2 rounds that related to our study and divided into gray literature and hand search.

DISCUSSION & CONCLUSION

This technology will increase quality of healthcare provided and productivity by providing enough information about the patient and decreasing the medical errors related to lack of patient information. Also, it will reduce percentage of missing and misplaced charts. The hospital can accommodate with the accreditation standard the hospital followed. Availability of the charts at any time 24\7. Protect the chart from any thefts or disaster. It will facilitate the workflow for healthcare provider.

KEYWORDS:

RFID, Health Information System, Tracking System.

View

Poster

Evaluation of Mobile Diabetes Monitoring Technology Effectiveness and Diabetic Patients Satisfaction

Shareefa Al-Mutawa¹, Maha Al-Nashmi²

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Research Ethical Committee/ Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION:

Diabetes is one of the most epidemic diseases affecting 500,000 people in Kuwait and 171 million patients globally¹. A study conducted by Dasman Diabetes Institute in Kuwait indicated that 70% of type 2 diabetic patients are not attaining the recommended target of Glycosylated Haemoglobin (HbA1c%) ². Therefore, the purpose of this research is to evaluate the user acceptance and satisfaction of Mobile Diabetes Monitoring Devices (MDM) among diabetic patients in Kuwait, like wise assess the effectiveness of Mobile Diabetes Monitoring in glycemic control to improve patient's quality of life.

METHODOLOGY:

The research sample population involved participants aged 21-60 years and had type I or type II diabetes for more than a year. A web-based questionnaire was used for the evaluation of MDM technology and its impact on patient satisfaction in Kuwait. The collected data were analyzed using MS. Excel and SPSS.

RESULTS:

A usable sample of 124 participants with a 62% response rate aided the research results. The maximum satisfaction score was 4.5 out of 5 in Patient Safety, and the minimum satisfaction score was 3.8 out of 5 in Physician to Patient Relationship. Participants who were using MDM for 5-9 years had the lowest HbA1c of 7.3%. Furthermore, 90% of the participants reported that the MDM made glycemic control much easier for them, and they began to monitor their blood glucose levels more regularly. Hence, significant improvement in the quality of life also was noted by the participants while using MDM.

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Exploring the Relationship between Canadian Accreditation and Patient Satisfaction

Dana Hussein, Haya Al-Subaiei, Dr. Maha Al-Nashmi

Health Informatics and Information Management Department, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

Health care accreditation is an ongoing process of assessing health care standards of excellence to identify what is being done well and what needs to be improved. Accreditation Canada co-operated with health care provider such as care giver, policy makers and the public to improve the quality and safety of health care services for all. The employee who work in hospitals are committed to providing the best care possible to their patient. Because of that, accreditation provides a foundation for creating systems of care across many types of health care organization. The research in this study aims to to evaluate the impact of the Canadian accreditation on patient satisfaction about services provided in the accredited hospital.

METHODS

A systematic review will be conducted to explore the relationship between Canadian accreditation and patient satisfaction. Systematic review model was performed including, collect and read the resources, analyze each article, choose the most relevant articles to research topic and apply the analysis. PubMed, Embase, Ovid MEDLINE, Google Scholar databased were used. 21 articles were found suitable for review, and only 7 were approved. The inclusion criteria included studies indicating the relationship between accreditation and patient satisfaction, impact of the patient satisfaction on the quality of services, implementing Canadian accreditation in the hospital, and studies that compare accredited and non-accredited hospital. Whereas the exclusion criteria include the study that did not provide specific information about the relationship between accreditation and patient satisfaction, and studies about patient outcome.

RESULTS

The studies were conducted in seven countries including Saudi Arabia, Jordan, Germany, Canada, Iran, Hong Kong, and Lebanon. Several methods were used in these studies such as questionnaire and cross-sectional study, which were the most common used. Accordingly, these studies have been categorised under three section: test the relationship between accreditation and patient satisfaction, the impact of accreditation on patient satisfaction and quality of services, and comparison of patient satisfaction in accredited and non-accredited hospitals.

DISCUSSION & CONCLUSION

Although Canadian accreditation and patient satisfaction met all the criteria by 21 studies, there is no clear positive evidence supporting the relationship between accreditation and patient satisfaction. Most studies do not provide any conclusive evidence about the relationship between Canadian accreditation and patient satisfaction. Consequently, a greater number of studies containing consistent evidence must be conducted to clarify and shed light on this relationship.

KEYWORDS:

Patient satisfaction, Canadian accreditation, quality of service, patient safety.

View

Poster

Compare the quality of cancer registry data by practical, and technical aspects among countries.

Danah Al-Toum¹, Fatimah Al-Turki², Hanan Al-Ajmi³
Dr. Maha Al-Nashmi

Health Informatics and Information Management (HIIM) Department, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

Cancer registry is an information system designed for the collection, management, and analysis of data. therefore, the value of cancer registration data largely depends on the data quality itself, and the high quality of data is interpreted with the effectiveness of cancer registration data flow process. The quality of data can be measured by the three key aspects, or they can be identified as methods, namely: comparability, validity, and completeness according to Bray and Parkin. And the result of the measurement can indicate whether the data of a certain country can internationally comparable, valid, and complete. The purpose of this research is to review the quality of cancer registration data by applying the three aspect of evaluation technique according to Bray and Parkin [1] in a comparison among Singapore, Norway, Ukraine, and Bulgarian.

METHODS

A search was conducted between PubMed, Google Scholar, Ovid, and Science Direct. Our research mainly depends on articles founded in Science Direct through related keywords in articles. About 68 articles were reviewed and abstracted and 15 of them were selected based on their relevance to our research and they must meet our pre-set criteria for inclusion. We decided to include articles with eight to ten years of publication and excluded studies in language other than English. We focused in countries followed World Health Organization (WHO) cancer registry regulation and rules, and International Agency for Research on Cancer (IARC). We included articles that clearly measure the quality of cancer registry data in certain countries. All articles founded were evaluate the quality of their data according to Bray and parkin's practical aspects for addressing data quality at the cancer registry in certain countries.

RESULTS

The data are internationally comparable in all countries compared, except for Ukraine the data was reasonably comparable. The data of all the countries were close to completeness and reasonably accurate

CONCLUSION

As a recommendation, the quality of Kuwait Cancer Registry (KCR) data should be evaluated according to the three aspect to indicate if the data are reliable, complete and international comparable.

KEYWORDS:

Cancer registry, cancer registry process, evaluation of cancer data, cancer registry among countries, quality of cancer registry

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Medical Laboratory Sciences

MLS AWARDS

First

MLS-11	Reem Al-Qahtani	<u>The use of Fluorescence <i>In- Situ</i> Hybridization Techniques in the Detection of Common Microdeletion Syndromes</u>
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Second

MLS-13	Shaikha Aldabasi	<u>Isolation of Marine Bacteria from the Arabian Gulf for Antibacterial Activity, Especially Against MRSA</u>
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Third

MLS-12	Rehab AlZoabi	<u>Comparing the concordance of actual and virtual crossmatches to identify pre-existing donor-specific Human Leukocyte Antigen (HLA) antibodies in kidney transplant patients</u>
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MLS ABSTRACTS

No.	Student Name	Title
MLS-1	Amany Awad	<u>Genetic frequencies of human platelet antigen in different populations</u>
MLS-2	Athoob Jomah	<u>Hydrogen sulfide upregulates cyclooxygenase 1 in the spinal cord of Streptozotocin-induced Diabetic Rats</u>
MLS-3	Hidayah Ali	<u>A review of current biomarkers employed for lung cancer prediction, diagnosis and treatment</u>
MLS-4	Kouther Alostath	<u>A retrospective study of serum tumor markers in breast cancer subtypes in Kuwait</u>
MLS-5	Latifa AlMansour	<u>The Histopathological and Biochemical Effects of the Food Color Carmoisine in the Liver and Kidney of Rats</u>
MLS-6	Maha AlKandari	<u>Histopathological and Biochemical Effects of the Food Dye Tartrazine in Liver and Kidney</u>
MLS-7	Marwa Mahmoud	<u>Thyme Oil as Antimicrobial Agent</u>
MLS-8	Maryam AlMutairi	<u>Improvement of quality management in Kuwait Central Blood Bank</u>

MLS ABSTRACTS

No.	Student Name	Title
MLS-9	Raghad Qassim	<u>Application of chromosomal microarray in the field of medical genetics</u>
MLS-10	Rawan Al-Thaferi	<u>Hydrogen Sulfide Upregulates Cyclooxygenase-2 in the Spinal Cord of Streptozotocin-Induced Diabetic Rats</u>
MLS-11	Reem Al-Qahtani	<u>The use of Fluorescence <i>In-Situ</i> Hybridization Techniques in the Detection of Common Microdeletion Syndromes</u>
MLS-12	Rehab AlZoabi	<u>Comparing the concordance of actual and virtual crossmatches to identify pre-existing donor-specific Human Leukocyte Antigen (HLA) antibodies in kidney transplant patients</u>
MLS-13	Shaikha Aldabasi	<u>Isolation of Marine Bacteria from the Arabian Gulf for Antibacterial Activity, Especially Against MRSA</u>
MLS-14	Shrouq AlEnezi	<u>A pilot study to investigate the prevalence of HLA-B27 in the Kuwaiti population</u>
MLS-15	Tamadher AlMutairi	<u>Essential Oils of Frankincense as Antimicrobial Agent</u>
MLS-16	Yasmine Alfadhli	<u>Effects of Beetroot on blood</u>

Genetic frequencies of Human Platelet Antigens in different populations.Amany Awad¹, and Nouf Al-Ajmi²

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Kuwait University.

²Department of Medical Laboratory Sciences/ Faculty of Allied Health Sciences/
Kuwait University.

Abstract

Platelets are anucleated cellular fragments that maintain homeostasis and the integrity of the lining of the blood vessel endothelium. The external membrane glycoproteins of platelets represent various polymorphic antigenic locating on their surface, which are called Human Platelet specific Antigens (HPA). HPA mediate platelet adhesion and activation. There are several HPA allele frequencies in different populations, therefore diverse incidence of alloimmune platelets disorders. The knowledge of such gene frequencies is vital in medical laboratories.

The aim of this literature review is to analyze HPA in different populations. Literature review of distribution of gene frequencies of HPA in various populations from five scientific articles. These populations include: North America, Latin America, Asia, and Africa.

From my literature review, the majority of HPA implicated in Fetal and neonatal alloimmune thrombocytopenia and immune refractoriness is alloantibodies against HPA-1a, except in East Asia population, there were no alloimmunisation against HPA-1a. While HPA-4a approximately appears as equal in all five contents that we have analyzed.

The study of HPA gene frequencies in different population will aid in clinical diagnosis, prevention, and even better choice of treatment of alloimmune platelets disorders.

[View](#)[Poster](#)

Hydrogen sulfide upregulates cyclooxygenase 1 in the spinal cord of Streptozotocin-induced Diabetic Rats

Athoob Jomah¹, Anwar Albanaw¹, Abdulaziz Al-Shammeri²

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²MSc. in Anatomy & Neuroscience, Faculty of Medicine, Kuwait University

Diabetes affects around 500 million patients worldwide, with an estimated rising trend, with prevalence of about 8.8% in adults. Diabetic neuropathy is the most common complication of diabetes. Cyclooxygenase-1 has been targeted for many nonsteroidal anti-inflammatory drugs. It is an enzyme that has an important role in controlling inflammation. Hydrogen sulfide (H₂S) is an endogenous reducing agent, colorless, flammable and poisonous gas.

Eight Sprague Dawley Male Rats (2-3 months of age, ~300-400 g) were obtained and divided into four groups (non-diabetic as control, non-diabetic with H₂S treatment, diabetic, diabetic with H₂S treatment). Diabetes was induced into the animals using STZ injection, and tissue was harvested after 28 days of the experiment. Samples of the spinal cord were processed histologically and stained using COX1 antibody.

The treated control tissue showed some scattered stain in both the white and grey matter of the spinal cord, the glial cells and connective tissue were staining mildly as well. The diabetic tissue sample showed very intense staining in the glial and connective tissue of the grey area and the white, with no neuronal cell staining. The H₂S diabetic treated tissue showed mild staining pattern all over the section. The neurons of the H₂S treated diabetic tissue shows COX-1 positive reaction which appears darker due to the background hematoxylin staining. Previous investigations have shown that COX-1 is involved in modulating inflammation that help to protect different tissues of the body. Our results confirm previous investigations and we were able to show that H₂S has increased the COX-1 expression in the damaged diabetic tissue, which is a sign of tissue regeneration and healing. This is the first time a study showed a positive outcome of H₂S in upregulates COX-1 in the spinal cord diabetic rats. In the future, further studies will be needed in order to study in detail the effect of H₂S in upregulates COX-1 with the probability of using Western blot and RT-PCR.

Keywords: Neuroprotection / H₂S

View

Poster

A REVIEW OF CURRENT BIOMARKERS EMPLOYED FOR LUNG CANCER PREDICTION, DIAGNOSIS AND TREATMENT

Hedaya Ali and Danah AL-Qallaf

Lung cancer is the second leading cause of death worldwide. Depending on the alteration occurring genetically and molecular profiles, the lung cancer is classified by the World Health Organization. The lung cancer are found with molecular profile in a comprehensive way. Various variants occurring in the histology of the lung cancer. Therefore, the identification of the lung cancer becomes difficult only with the findings obtained by histological examinations. The identification of biomarkers played an important role in the detection of cancerous lesion. The introduction of novel biomarkers like mutation in epidermal growth factor receptor and others lead to the identification of the lung cancer patients, who can be found benefited from the therapies of targeted molecules. The new field of personalized therapy was developed with the targeted anticancer therapy and immunotherapy. The knowledge about the biomarkers are need to be known in depth for its application in identification of the cancer cells. In this literature review, The importance of biomarkers for the detection, treatment and prognosis of lung cancer will be discussed.

[View](#)[Poster](#)

A retrospective study of serum tumor markers in breast cancer subtypes in Kuwait

Kouthar Alostath¹, and Danah Alqallaf²

Medical Laboratory Sciences, Faculty of Allied Health Sciences, Kuwait University.

INTRODUCTION

Breast cancer is the most common cancer among women, impacting 2.1 million women each year. Therefore, it is important to classify breast cancer molecular subtypes as it guides individual treatment and different prognostic values. Previous studies suggested a relationship between pathological factors, molecular subtypes and the elevated levels of serum tumor markers. serum tumor markers are biomarkers that are released by cancer cells and easily detected in blood-sample. The measurement of Serum tumor markers is the most efficient and noninvasive method hence the main goal of this study is to promote the use of CEA serum marker as a tool to aid in the classification of breast cancer into its subtypes in Kuwait

METHODS

With adherence to the proper ethical guidelines, study data has been collected from a total of 69 patients diagnosed with breast cancer at MOH Cancer specialized centers between the periods of 2013 and 2108. Using multivariate probability tests, differences between proportions were investigated with P value of < 0.05 being considered to be statistically significant.

RESULTS

- Serum CEA levels measured at the time of diagnosis were significantly higher in patients who carried the HER2+ molecular phenotype.
- Elevation of CEA levels was only significantly greater in patients with HER2 positive tumors, regardless to the status of ER and PR markers.
- no association was found between CEA levels and patients' age, gender, tumor stage, and pathology of tumor.

DISCUSSION & CONCLUSION

To conclude, the findings of this study reveals the potential of using of CEA serum marker as a tool that can aid in the classification of breast cancer subtypes in Kuwait. It aids in predicting the prognosis of breast cancer patients in Kuwait, leading to better disease management and to an enhanced quality.

KEYWORDS:

Breast cancer, biomarkers, molecular subtypes.

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The Histopathological and Biochemical Effects of the Food Color Carmoisine in the Liver and Kidney of Rats

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Faculty of Allied Health Sciences, Kuwait University

Food coloring are chemical compounds that are added with the food to make it more attractive by enhancing the color and taste. However, various studies have shown that consumption of food containing artificial dye for a long time can cause substantial changes in cellular function and pathophysiological conditions including diabetes, cancer, and atherosclerosis. Carmoisine one of the commonly used food dyes is an artificial red dye that belongs to azo dye group. It is usually added in foodstuff such as yoghurt, ice cream, instant puddings, cake mixes, soft drinks, flavored chips and candy. This review focuses on the histopathological and biochemical changes following the intake of Carmoisine in rats. A literature survey was done for the articles published from 2015-2019 showing the toxic effects of Carmoisine. Among these, papers dealing with changes in the hepatic and renal histopathological and biochemical changes were selected. Recent studies have shown that carmoisine induces histopathological and biochemical changes in vital organs like liver and kidney. In this regard, the purpose of this review is to understand the histopathological toxic effects of carmoisine in the liver and kidney of experimental rats. Studies dealing with histopathological and biochemical toxic effects of carmoisine have convincingly showed that rats treated carmoisine cause significant impairment in the histological and biochemical functioning of the liver and kidney leading to hepatic and renal disorders. In conclusion, these studies on the toxic effect of carmoisine on hepatic and renal organ, therefore, suggest that prolonged consumption of foods containing carmoisine should be avoided.

Keywords: Food toxicity, Carmosine, Liver, Kidney

View

Poster

Histopathological and Biochemical Effects of the Food Dye Tartrazine in Liver and Kidney

Maha Alkandari ¹, T. Chacko Mathew ¹

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Food additives are products added to food to enhance its taste and appearance. Tartrazine (E 102) is a yellow colored, water soluble food dye. This review focuses on the histopathological and biochemical changes following the intake of Tartrazine in rats. A literature survey was done for the articles published from 2015-2019 showing the toxic effects of Tartrazine. Among these, papers dealing with changes in the renal and hepatic histopathological and biochemical changes were selected. It is found that chronic exposure of tartrazine at acceptable daily intake (ADI) of 7.5mg/kg had significant toxic changes in histopathology and biochemical parameter of various organs studied in male albino rats as compared to the control. Further studies have shown by histopathological staining methods that following treatment with tartrazine for a period of 30 days showed inflamed hepatocyte, vacuolation, compression of the central vein, while after treatment for 60 days, the experimental group showed vacuolation, loss of hepatic plates and presence of pigmented Kupffer cells within the sinusoids as compared to control rat liver in hematoxylin and eosin stained hepatic tissues. In addition to the hepatic pathology, toxic pathological changes were also observed in the kidney as compared to the kidney tissues of normal animals following treatment with tartrazine. Various other studies have shown results confirming the toxic histopathological and biochemical changes in the liver and kidney following tartrazine intake. Although some studies suggested that foodstuff such as Royal Jelly, Cod Liver Oil and blackthorn fruits have protective effects against tartrazine toxicity, they could not demonstrate significant beneficial changes in the liver and kidney following the intake of these food stuff. In conclusion, the results from several studies suggest that the consumption of tartrazine even within the acceptable daily intake has significant toxic histopathological and biochemical effects in the liver and kidney and people should be careful of consuming food containing tartrazine.

Keyword: Tartrazine, Toxicity, Biochemistry, Histology, Ultrastructure.

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Thyme Oil as Antimicrobial Agent

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Abstract

Background: Essential oils such as thyme oil were known as effective antimicrobial agents in the past decades, it can be used against some bacteria instead of therapeutic drugs to decrease the side effects on the human body.

Aim: Study and prove the effectivity of thyme oil as antimicrobial agent.

Methods: By using PubMed, Medline and other related articles, as 58 references were examined, but 20 were enough to be used as references due to their relation.

Results and Discussion: There are several factors that will affect the results of the efficacy of thyme oil such as climate conditions, age of the plant, extracted part etc. The major active component against pathogenic bacteria in thyme essential oil is thymol. Phenolic components of thyme oil are responsible for the antimicrobial nature of thyme oil especially against gram-positive bacteria.

Conclusion: There are obvious effects of thyme oil on bacteria, as the main effective component is thymol, it is highly functional on gram-positive bacteria as it targets the bacterial cell wall and every plant has its unique therapeutic option

[View](#)[Poster](#)

Improvement of quality management in Kuwait Central Blood Bank

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INTRODUCTION

Quality management is the system that ensure that all activities necessary to design, develop and then implement the product at maximum satisfaction level.

METHODS

This project included data collection from Kuwait Central Blood Bank, quality control unit. The quality management in Kuwait Central Blood Bank has been analysed between the year 2018 and 2019.

RESULTS

The improvement in quality management between two years was 12%. The highest errors occurred in 2018 and 2019 because of data and result approximately 27%. The lowest errors occurred in 2018 for donation in the rate of 0.7%, while the lowest errors occurred in 2019 for staff and communication in the rate of 0.9%. There was an equal percentage of ABO, RH, Kell discrepancy in 2018-2019 in the rate of approximately 3%.

CONCLUSION

The ultimate goal of quality management in the blood bank is to monitor the type of error and then state the corrective action and root cause and incorporate conformance to international standards. Thus, improving processes to get the best possible results in the least possible amount of time with minimal mistake. In this study, we report 12% improvement of quality management in the Kuwait Central Blood Bank for correction and prevention of errors.

KEYWORDS

Quality management, Blood Bank, Quality Control.

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Application of chromosomal microarray in the field of medical genetics.

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INTRODUCTION

Microarray analysis is a high resolution, whole genome screening technique that can detect copy number variation (CNV) beyond the resolution of conventional chromosome analysis. It is used to detecting if a patient's DNA has losses (deletions), gains (duplications, triplications etc.), breakpoints and ploidy abnormalities which are disease causing and therefore clarify their clinical problems. It employs digital imaging systems to capture and quantify the comparative fluorescence intensities of the labelled DNA probes that have hybridized to each target. The sensitivity of CGH array is >1000 times greater than that of chromosome analysis using light microscopy.

METHODS

Four DNA samples from patients with multiple congenital anomalies and developmental and one DNA sample from patient with infertility problem with normal karyotyping were received for comparative genome hybridization (CGH) microarray analyses to the medical genetic laboratories at the Kuwait Medical Genetic Centre. Genomic DNA obtained from whole blood of either a normal male or female individual, was used in all experiments as reference DNA.

RESULTS

Abnormal array- CGH results were found in all 5 patients. The microarray study detected 3 deletion cases, 1 duplication case, and a rare case with duplication and deletion in the short arm of chromosome 8, der(8) dup(8)(p12p22)del(8)(p23).

DISCUSSION & CONCLUSION

In this study 4 patients with dysmorphic features and one case with male infertility were investigated by CGH microarray or chromosomal microarray analysis. The array study showed genetic aberrations related to known syndromes in 3 patients suffering with multiple congenital anomalies and developmental delay. These included Williams-Beuren syndrome, Phelan-McDermid syndrome and Patau or trisomy 13 syndrome. Moreover, CGH microarray study delineated the genetic composition and the karyotyping precisely in all studied 5 cases. In conclusion, microarray analysis is a powerful, reliable, and time efficient tool that can detect small genetic changes. Therefore, the application of array-CGH is an essential step toward the explanation of the undelaying cause of congenital malformations, mental retardation, autism and behavioural abnormalities, infertility, and cancer.

KEYWORDS:

Microarray, Copy number, Medical genetics

View

Poster

Hydrogen Sulfide Upregulates Cyclooxygenase-2 in the Spinal Cord of Streptozotocin-Induced Diabetic Rats

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Diabetes is a disorder characterized by hyperglycemia resulting from defects in insulin secretion or in insulin action or both. There are two types of diabetes, diabetes type 1 and diabetes type 2. Diabetic neuropathy is one of the complications of both type 1 and type 2 diabetes. It is characterized by a progressive loss of nerve fibers which will affect both the autonomic and somatic divisions. Glucose mediated upregulation of COX2 pathway activity was found to have a role in the pathogenesis of DPN. COX2 is considered as a source for prostaglandin formation in the inflammation process. In addition, prostaglandin has a role in both the resolution and promotion of inflammation. In the nervous system, hydrogen sulfide is involved in neurotransmission and many physiologic processes.

Eight Sprague Dawley Male Rats (2-3 months of age, ~300-400 g) were obtained and divided into four groups (non-diabetic as control, non-diabetic with H₂S treatment, diabetic, diabetic with H₂S treatment). Diabetes was induced into the animals using STZ injection, and tissue was harvested after 28 days of the experiment. Samples of the spinal cord were processed histologically and stained using COX2 antibody.

There was no cellular elements staining of COX2 observed in all the four tissues. However, there were some histological changes observed in the diabetic sample showing some cellular pyknosis and vacuolation, probably due to increased apoptosis. COX2 expression in case of inflammation in diabetic rats was predicted, but not detected in the investigated tissue sections, and the effect of hydrogen sulfide should have been observed. This finding is similar to some previous investigations using immunohistochemistry and RT-PCR. It is not clear if our negative result were genuine or as a result of processing errors, further investigations are needed using positive control tissue and different protocols. However, due to the current COVID-19 situation and limited availability of time and laboratory access we were not able to confirm this.

Keywords: COX-2 / H₂S

View

Poster

The use of Fluorescence *In-Situ* Hybridization Techniques in the Detection of Common Microdeletion Syndromes

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INTRODUCTION

Microdeletion syndromes are a heterogeneous group of disorders caused by the deletion of specific regions of chromosomal DNA of less than 5 megabases (Mb). These deletions are undetectable by conventional cytogenetics techniques because the deletion size is small (<5 Mb). A method that is commonly used for microdeletion detection is fluorescence *in situ* hybridization (FISH), which is a molecular cytogenetic technique based on fluorescently labelled DNA probes specific for a chromosomal region, that allow direct visualization of genetic alterations in cells of patients.

METHODS

In the present study, five cases of clinically suspected microdeletion syndromes with normal karyotypes were evaluated by FISH technique using commercial probes specific for each different type of microdeletion syndromes involved in this study. These cases were William, Prader Willi, DiGeorge, Cri du Chat, and Jacobsen syndromes.

RESULTS

FISH study revealed all 5 patients had hemizygous microdeletion confirming their clinical conditions and refining their karyotypes. The karyotypes were as follow: for DiGeorge syndrome case was 46,XY,del(22)(q11.2), Prader Willi syndrome patient was 46,XX,del(15)(q11-q13), Williams syndrome was XY,del(7)(7q11.23), Cri-du-Chat syndrome case was 46,XX,del(5)(p15.2) and Jacobsen case was 46,XX,del(11)(q24.3-11q25).

DISCUSSION & CONCLUSION

In conclusion, FISH technique is a powerful and sensitive technique and is the method of choice for the diagnosis of microdeletion syndromes as well as in detecting small genomic alterations that is beyond the resolution of cytogenetic banding techniques by examining chromosome spreads as well as interphase nuclei.

KEYWORDS:

FISH technique, microdeletion syndrome, commercial probes.

View

Poster

Comparing the concordance of actual and virtual crossmatches to identify pre-existing donor-specific Human Leukocyte Antigen (HLA) antibodies in kidney transplant patients.

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There have been only a few studies that have evaluated concordance between virtual (VXM) and actual crossmatch (AXM) methods, therefore there was a need for this evaluation in a centre specific study that may be influenced by institute specific protocols, techniques as well as instrumentation. The main goal of this study was to compare the concordance of results between AXM and VXM to identify pre-existing donor-specific Human Leukocyte Antigen (HLA) antibodies in kidney transplant patients in Kuwait. This is to evaluate the utility of the virtual crossmatch as a tool for pre-transplant risk assessment and kidney allocation.

HLA typing was performed using Luminex technology. The AXM were performed using complement dependent cytotoxicity (CDC) and flow cytometry. Finally, the VXM was extrapolated from HLA typing and the Luminex single antigen (LSA) assays.

This involved looking at data from 103 patient donor pairs recruited between 2019-2020 . The principal criterion for inclusion in this study was patient/donor pairs on whom both a virtual and an actual crossmatch has been performed along with HLA typing data, a pre-requisite for crossmatch. Moreover, this retrospective analysis of 103 kidney transplant patients and donor pairs provided a numerical value of concordance between virtual and actual crossmatch (74%) and the percentage of non-concordance between virtual and actual crossmatches was (26%) . Our results demonstrate that the VXM is a useful tool in predicting donor-recipient immunologic compatibility. This is especially useful when harvesting a kidney from a deceased donor as it reduces the time needed for evaluation of compatibility when time is a scarce commodity.

Crossmatch¹ , HLA Antigens / immunology², Kidney transplantation³

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Isolation of Marine Bacteria from the Arabian Gulf for Antibacterial Activity, Especially Against MRSA

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These days, Methicillin resistant *Staphylococcus aureus* (MRSA) have become one of the most problematic Gram-positive bacteria in the world and unfortunately infections caused by this bacterium are becoming more difficult to treat due it is resistant to almost all available antibiotics. Currently vancomycin has become the drug of choice for treating MRSA and teicoplanin is also being used. However, treatment failures and adverse side effects are noticed, therefore it is of great importance to find new and safe antibiotics and alternative therapies for treatment. The aim of this study was to isolate marine bacteria from the Arabian Gulf, which are rich sources for bioactive molecules with the potential applications in medicine. For the objective of finding antibiotic compounds against MRSA, water samples were collected from the Arabian Gulf. The identification of the isolated bacteria was confirmed by 16S rRNA sequencing method and their antibacterial activity was measured using disc diffusion tests. The results of the current study could not confirm the anti-MRSA activity of any of the isolated marine bacteria. More research is required to include larger number of water samples from different depths and ambient water temperatures.

Keywords: Marine bacteria¹, Pseudoalteromonas², MRSA³, Antibacterial activity⁴

View

Poster

A pilot study to investigate the prevalence of HLA-B27 in the Kuwaiti population

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INTRODUCTION

The association between HLA-B27 and ankylosing spondylitis was the first HLA disease association. It is also the strongest HLA association to date. The objective of this study was to study the prevalence of HLA-B27 in the Kuwaiti population and compare the calculated prevalence to reported prevalence ranges in Arab and other populations.

METHODS

This study was conducted to assess the prevalence of HLA-B27 in a cohort of 200 randomly selected Kuwaiti individuals. DNA extraction was performed and HLA typing by PCR. Gel electrophoresis was performed to visualise bands under UV light. HL-B27 status was defined (positive/negative). After all the HLA types were collated the HLA-B27 percentage was calculated.

RESULTS

This pilot study specifically identified the incidence of HLA-B27 in a total cohort of 200 Kuwaiti individuals to be 3.5%. The diseases associated with these positive individuals were uveitis, rheumatoid arthritis, cortical visual impairment and multiple sclerosis.

DISCUSSION & CONCLUSION

The prevalence of 3.5% in our cohort was comparable to the prevalence in countries such as Saudi Arabia and Iran and Iraq where most Kuwaitis originate from. It was higher than that of Oman (0.3%), Syria (1.4%) and Lebanon (1.44%). It was, however, substantially lower than Norway in which the HLA-B27 prevalence was 15.9%. My results were not significantly different to the previously conducted study on the 544 healthy Kuwaitis even with my smaller cohort.

This pilot study is an initial effort towards more comprehensive studies with larger cohorts. Future studies on the distribution of HLA-B27 in patients with ankylosing spondylitis or uveitis will require the prevalence data in Kuwait in larger cohorts of Kuwaitis.

KEYWORDS:

HLA-B27, HLA typing, disease-association

View

Poster

Essential Oils of Frankincense as Antimicrobial Agent

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Historically, the use of essential oils and Frankincense in particular have been noted. The objective of this work is to understand Frankincense in terms of its chemical composition and relevant antimicrobial properties. It also provides overview of the possible use of herbals such as Frankincense to combat antimicrobial resistance pathogens. Therefore, encouraging the use of alternative treatment resources. PubMed, Amed, Cinahl, and Medline database were used for searching references with titles containing "Frankincense". Other search terms were; *Boswellia*, antimicrobial, antibacterial, bacteria. The chemical profiles of the resins are extremely diverse with nearly 300 overlapping volatiles, affecting its pharmacologic properties. The most distinctive chemicals extracted from different *Boswellia* trees and with therapeutic activity are; Verticilla-4, II-triene, incensole, acetyl-ketoboswellic acid (AKBA), α -Boswellic acid, 3-oxo-tirucallic acid (extracted from *Boswellia carterrii*). The antibacterial property of the oleogum resins extracts from *Boswellia* trees might be attributed the presence of organic phenolic acids. The acids act in reducing microbial competition with the host for nutrients as well as endogenous loss of nitrate. It was found that the essential oils of frankincense are very promising in terms of treatment and combat against a wide spectrum of pathogens that were noted to resist different antimicrobial agents.

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Effects of Beetroot on blood

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Blood is an important tissue with several vital functions. It consists of plasma and cells, which are usually assessed by lab tests like the CBC. Several factors affect the functions and components of blood, some of which are nutrients consumed in the food. Beetroot has attracted much attention in the past few years because of its anti-oxidant and anti-inflammatory effects. It is packed with essential nutrients and chemicals, and it was found to have many benefits for the human body. We planned a project to study the possible effects of beetroot juice on the blood using CBC in Kuwait. We recruited volunteers and started the study, but we had to stop the project due to the COVID-9 pandemic situation. The project was converted into literature review in which the effects of beetroot on the blood and blood components were discussed based on previous publications. Several studies were published on the effects of beetroot on blood and haematological parameters. It was reported that beetroot could reduce blood pressure, and could improve blood flow and oxygen use, stamina, and exercise performance. Other studies reported increased immune cells and reduced blood clotting. More studies are still needed to explore other possible beneficial effects of beetroot for humans. Hopefully we can resume our project in the future and uncover such possible benefits.

KEYWORDS:

Blood, beetroot, effects.

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Occupational Therapy

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OT ABSTRACTS

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Psychiatrists' Perception of the Occupational Therapy Role in Mental Health Practice

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INTRODUCTION

This study sought to understand the perception that psychiatrists at Kuwait Center for Mental Health (KCMH) have on the role of occupational therapy in mental health practice through the administration of a questionnaire that included questions regarding specific components of occupational therapy interventions, attitude towards occupational therapy significance and contributions, and other relevant questions.

METHODS

This study follows a cross-sectional descriptive design with 30 psychiatrists from Kuwait Center for Mental Health. Experts in occupational therapy developed a questionnaire that sought to gain insight into psychiatrists' perception of the occupational therapy role in mental health practice. A pilot study was conducted successfully to gain insight into the tool's validity (relevance and clarity of the questionnaire items). This questionnaire was distributed to all 80 psychiatrists at Kuwait Center for Mental Health, 30 of which responded. Data was put into the available SPSS software for statistical analysis. Descriptive statistics such as mean and standard deviation as well as frequency were used for analysis. (IRB approval number: 2908).

RESULTS

The results of the study indicated that the majority of participants have had some level of experiences working with an occupational therapist, however, the majority have only referred less than 5 or no patients to an occupational therapist. The results also showed that the majority of participants have misconceptions and limited knowledge of the specific components of occupational therapy intervention in mental health practice. The majority of participants believed occupational therapy is equally as important as other healthcare professionals in mental health practice and agreed that they were motivated to work with an occupational therapist in the future.

DISCUSSION, CONCLUSION, & IMPLICATIONS

This study revealed the limited knowledge base and understanding that psychiatrists at KCMH hold regarding the role of occupational therapy in mental health practice. Therefore, future interdisciplinary collaborations between occupational therapists, psychiatrists and other members of the rehabilitation is highly recommended to support desired patients' outcomes.

KEYWORDS:

Psychiatrists, Occupational Therapy, Mental Health Practice, Kuwait

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Translation and cross cultural adaptation of occupational therapy outcome measure assessment in the Arabic language

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Objectives

The purpose of this study is to investigate the translation and cross-cultural adaptation accuracy among different assessments of occupational therapy outcome measure

METHODS

The methodology went into four steps. The First step was to identify the keywords that are used to search for articles in the databases. The second step was searching the databases. The third step was to classify the articles that are found in step two according to Holm's evidence base hierarchy. The fourth step was choosing the articles by using the strongest method according to step three.

RESULTS

The results are divided into three steps. The first step was according to the five steps of translation, the second step was according to the validity and reliability, The types of validity were (construct validity, content validity, concurrent validity, discriminative validity, convergent validity, and concurrent validity), and reliability were (test-retest and inter-rater). The last step was according to the addressed area. Three studies addressed the pediatric unit, two addressed the neurological rehabilitation unit, and two studies addressed hand therapy unit.

DISCUSSION & CONCLUSION

Our main study is the psychometric properties of the Arabic version of occupation self-assessment (OSA), but due to the corona pandemic we faced some obstacles and we couldn't complete the data collection. Another topic was chosen to investigate the strength & weakness of some studies method to assists us in continuing the main study. In this study, a comparison between occupational therapy outcome measure assessments was done to investigate the translation and cross-cultural adaptation accuracy.

KEYWORDS:

Translation and cross cultural adaptation| Validity| Reliability| Tools| Occupational outcome measurer assessment| occupational therapy| Arabic language.

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Poster

The Relationship of School Bags Weight with Musculoskeletal Pain among Higher Secondary Students in Kuwait

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Abstract

Background: Musculoskeletal pain among school students is a well-known concern as acknowledged by WHO experts studying school environments. This study aimed to explore the prevalence of pain among higher secondary school students in Kuwait, investigate the association between pain with the weight of school bags and to find the influence of school's physical environment, such as lockers, stairs, and distance to walk.

Methods: A cross-sectional descriptive study was carried out among 253 higher secondary private school student. The schools were divided into three schools having lockers and the other three without lockers. Data was collected using a demographic questionnaire. The numeric pain rating scale was used to assess pain intensity. The students' height and weight in addition to the weight of their school bags were measured using appropriate measuring scales.

Results: A total of 261 students participated in the study while 70% of them reported pain. A significant difference was observed between males & females in the perception of LBP ($p=0.0001$) & Shoulder Pain ($p=0.0001$). The bag weight is not associated with MSC pain in males, however, in females LBP is related with bag weight ($p=0.01$), & shoulder pain ($p=0.0001$). Lockers facility produced no significant difference in causing LBP or shoulder pain among males, while in females a significant difference was observed in causing shoulder Pain ($p=0.01$)

Conclusion: Musculoskeletal pain among higher secondary school students in Kuwait seems to be common. The majority of students had musculoskeletal pain especially in lower back and shoulder. There were multiple factors associated with shoulder and lower back pain in females more than males. These factors according to our data were mainly the proportion of school bag weight to student weight and lockers. These findings can inform schools to provide locker facility.

Keywords: Musculoskeletal pain, School bags, School students, Lockers, Kuwait

View

Poster

The Relationship between Obesity in Children and Participation in Home, School, and Community

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INTRODUCTION

Obesity is a common community health problem during childhood. Moreover, Kuwait has higher obesity prevalence compared to neighbouring countries. The aim of this paper is to present a review of literature involving participation restrictions reported in children with obesity.

METHODS

This review was done by searching the following keywords: Obesity, Children, Participation, Home, School, Community, in the following databases: PubMed, Scopus, and ResearchGate. A total of 98 articles were found and classified based on the hierarchy of evidence. The inclusion criteria consisted of articles that had very similar research question, were available in full text, and had participants from different childhood stages.

RESULTS

A total of six articles that explored the participation of children who are obese in home, school, or community settings were retrieved from these databases. All articles were classified as level IV and level V of evidence. The factors for comparison were number of participants, gender of participants, and their age. Children with obesity show more physical and psychological limitations compared to healthy children. These limitations can interfere with a child's participation in the three settings.

DISCUSSION & CONCLUSION

Our analysis shows that there is strong evidence to support the impact of obesity on children's participation. Of the three types of participation the most reported was home and school participation.

KEYWORDS:

Obesity, Children, Participation

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Effect of native language versus second language on memory performance of bilingual college students

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Introduction

The process of memorization occurs when learning another language. In turn, language can influence how memory is formed and retrieved. The **purpose** of this study was to examine the effect of first vs. second language on memory performance of bilingual college students.

Methods

A sample of 283 HSC students participated in this study. The participants were instructed to memorize a list of items that were presented in Arabic (or English) language. Four memory tests were implemented to assess the memory performance of the participants. The same tests were then repeated by using the other language. The language of presentation was randomly counterbalanced between students to avoid confounding variables.

Results

Repeated-measure t-tests revealed no significant difference between the Arabic and English memory performance of students in all memory tests ($p > .05$). Pearson correlational revealed a linear relationship between Arabic & English working memories ($r = .28$, $p = 0.001$), and Arabic & English long-term memories ($r = .26$, $p \leq 0.00$). The correlations between memory and other variables of GPA, sleep hours, diet, and sports were not significant.

Conclusion

Memorizing information presented in the first or second language had no effects on short-term, long-term, or working memory. However, the participants showed similar retrieval pattern of memory systems in both languages. That is, those who displayed good memory in English, have also displayed good memory in Arabic, and vice versa. This was mainly evident in working memory and long-term memory. Our participants showed similar retrieval pattern of primacy and recency effects on both languages, displaying consistency with previous research.

Keywords: Learning, Immediate Memory, Short-term memory, Working memory, Long-term memory.

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A Literature review: The effectiveness of the interdisciplinary day-care program on the inpatient use of the mental health services.

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Nasser alotaibi⁴

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INTRODUCTION

Mental health is a state of mental well-being including individuals emotional, psychological, and social well-being. Day care is a cost-effective service offering daytime care and support to persons with psychiatric disabilities. It is effective in providing adequate psychiatric care for patients in settings which do not break up a patient's valuable and essential links with the community by improving their self-esteem social functioning and community integration.

OBJECTIVE

The systematic review aims to review as much as possible articles and studies that support the effectiveness of interdisciplinary day-care program on the in-patient use of mental health services.

METHODS

In this Literature review study, two data bases (PubMed and Google Scholar) were used. Ten keywords were used for searching 18 articles containing one meta-analysis systematic review article, two randomized trial articles, three cohort study articles, ten cross sectional studies, and two case study articles.

RESULTS

Six most related articles to the review question were mentioned in details according to several factors in table 1. These factors are authors, number of participants, method, inclusion criteria, aim, results and limitation.

DISCUSSION & CONCLUSION

The six articles were discussed and compared for each factor. After the discussion and comparison for all the factors, article 6 showed itself better than others articles because it has the best factors among the other articles which are aim, inclusion criteria, and result. The review showed that the day-care program has a great effectiveness on the patients QoL which raises the length of re-admission or even decrease the chance of being re-admitted of those patients.

KEYWORDS

day-care center, effectiveness, interdisciplinary, mental health, mental health services, inpatients, schizophrenic, psychosis, day-care program, mental disorder.

View

Poster

Effect of sensory stimulation on alertness and arousal of people in coma

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INTRODUCTION

Coma is a state of loss of consciousness, in which the level of arousal, awareness of environment, and responsiveness to usual visual, auditory and tactile stimuli can be decreased. There are different assessment can be used for coma such as Glasgow Coma Scale (GCS) and Rancho Los Amigos scale. GCS defines five categories: death, persistent vegetative state, severe coma, moderate coma and good recovery. Sensory Stimulation (SS) or coma stimulation is commonly used as a type of treatment, which increases the level of consciousness and enhances the rehabilitative potential for comatose and vegetative patients.

METHODS

This systematic review was carried out by three stages. In the first stage, keywords were developed. In the second stage, databases searched were chosen to select articles. After that, irrelevant and similar studies were excluded based on the inclusion criteria. Finally, all studies were classified based on the strength and precision of their research methods according to Holm's suggestion.

RESULTS

Six studies were selected and reviewed. Ten factors including authors, number of participants, their ages, coma stage, inclusion criteria, method of the study, intervention, outcome measure, results, and limitations of the study, were used to extract information and compare between these articles.

DISCUSSION & CONCLUSION

This systematic review indicated that SS has a significant effect on alertness and arousal of people in coma or vegetative state.

KEYWORDS:

Coma, sensory stimulation, coma stimulation, rehabilitation, arousal

View

Poster

Depression and Anxiety in Parents of Children with Cancer

Hessa Alrashidi¹, and Modhy Ali²

Name of supervisor: Dr. Mehdi Rassafiani

Occupational Therapy, Faculty of Allied Health Sciences, Kuwait University

OBJECTIVE

The purpose of this paper was to review the literature about the psychological impact such as: depression, stress, and anxiety of parents of children with cancer.

METHODS

This review was carried out by two stages. The first stage keywords were developed. The second stage was searching in two databases and removing all irrelevant and similar studies. After that, all the studies were classified according to their methods based on the Holm's guideline.

RESULTS

Seven articles were chosen from the above articles that have stronger methods, all the seven has been reviewed and compared according to these factors: number of authors, number of participants, participant age range(SD and mean), inclusive criteria, method of study, outcome measure, summary of results, and country.

CONCLUSION

This review has been done to view the impacts on parents that is caused by having children diagnosed with cancer, which mainly are psychological issues such as: depression, stress, anxiety. By reviewing these studies, it's important to evaluate the parent's psychological status and to understand how it effect on their children. This awareness can lead us to a better understanding of the child prognosis and to help us to create more affective interventions.

KEYWORDS:

Child with cancer, Mother, Father, Depression, Caregiver, Parents, Anxiety, Stress

[View](#)

[Poster](#)

Swallowing and feeding assessments in pediatrics. An overview

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INTRODUCTION

Feeding, eating, and swallowing are valued and meaningful interdependent functions part of activities of daily living. They enable basic survival and well-being and are fundamental to living in a social world. A child's capability for these tasks is essential for obtaining body nourishment befitting general performance of valued roles and pursuits.

The role of an occupational therapist within a multidisciplinary team is to restore these functions when impaired due to various health conditions, whether physical or mental, illness or age related. Occupational therapists (OTs) are positioned to comprehensively assess impairments associated with a child's feeding, eating, and swallowing ability not only within physiological factors but also the psychosocial, cultural, and environmental elements associated with these aspects of daily performance.

The aim of this review is to examine the basic characteristics of measures used by occupational therapists to assess feeding, eating, and swallowing domains in children with physical disabilities.

METHODS

^[SEP]In the period August - September 2020, a systematic review was conducted in four electronic databases: PubMed, Scopus, Wiley Online Library and ScienceDirect. Articles included were those where the population studied was aged but not limited to 0–18 years, 50 % or more of the assessment items (or items of a subtest) were swallowing/feeding related, and any aspect of swallowing/feeding investigated was related to physical disabilities. In addition, articles examined assessed observations or reported history, and may have been completed by a clinician or parent/caregiver. While articles excluded were those where the study population was not human, assessment was not published in English, or the assessment only investigated adult populations. Out of the 1721 articles found in all databases, 5 articles were chosen based on the inclusion and exclusion criteria, the availability of free full texts, published within the past 20 years, and relevance to research question. These articles were classified based on the Holm's hierarchy of evidence and analyzed for content.

RESULTS

Through analysis, the studies demonstrated six non-instrumental measures with sound psychometric properties that enhance available instrumental evaluations such as clinical bedside evaluation as well as VFSS and FEES exams. These were the Dysphagia Disorder Survey (DDS), Eating and Drinking Ability Classification System (EDACS) and Functional Oral Intake Scale (FOIS). In addition to the Ability for Basic Feeding and Swallowing Scale for Children (ABFS-C), Schedule for Oral Motor Assessment (SOMA) and the Pre-Speech Assessment Scale (PSAS).

CONCLUSION

Various tools and assessment measures exist to assess feeding, eating, and swallowing disorders in the paediatric population with physical ailments. Our aspiration is to use standardized, valid and reliable methods in our practice here in Kuwait. This article hopefully is the beginning and an initiative to enable and augment a synergistic profession among healthcare specialists.

KEYWORDS

Swallowing, Children, Assessment

View

Poster

Wheelchair Accessibility of Governmental Public Buildings in Kuwait

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INTRODUCTION

According to 2035 vision, it addresses the prospective of human rights, which removes the barriers facing person with disability and transform the disability from being considered as a single medical problem into a civil right issue. Accessibility is considered as a vital factor for more capability and productivity rates. This study is to address wheelchair accessibility of governmental public buildings in Kuwait and understand current situation for further suggest sustainable solutions to reach the 2035 vision.

METHODS

This study is a cross-sectional, descriptive design. After received the approval from the Research Committee of Human subject in Kuwait University, 12 governmental public buildings from South Surra (Ministries Area) ,built within last 30 years ago, were chosen as a data collection. However, due to COVID-19 Circumstances , 4 buildings were excluded due to incomplete measurements. The adapted Useh, Moyo, & Munyonga, 2001 Questioner was used to address accessibility of chosen buildings for wheelchair users. Data and findings are score and record from direct observation and measurement in which the total score of 16 represent 100% compliance. Additionally, Kuwait Universal Design Code 2018 was used as a standard to the instrument. The outcome is a set of simple percentage rates coming out from descriptive statistics to determine the compliance level.

RESULTS

The results showed that none of the addressed buildings were 100% compliant. The lowest percentage was for accessibility to the building, toilets, and public telephones with a score of 12.5%. the middle score goes for entrance and car parking areas with a score of 50% and 37.5% in order. The highest score were for accessibility of vertical circulation and accessibility inside building with a score of 62.5%.

DISCUSSION & CONCLUSION

The current situation of the Kuwait Governmental Public Buildings is at poor accessibility level. Definitely, there are further modifications needed. This are strongly required to meet the goal of 2035 Kuwait vision by maximising the functionality of public buildings through accessibility. The planning and achievement of productive environments highly depends on the application of art and science of ergonomics, well known by occupational therapist who is specialised in ergonomics. Such application direct Kuwait to improved productivity, safety and legal compliance for population, especially people with disabilities and/or wheelchair users.

KEYWORDS:

Wheelchair , wheelchair users , accessibility, governmental public buildings , productivity, Kuwait 2035 vision , ergonomics

View

Poster

Retrospective Study: Clients of Occupational Therapy at The Physical Medicine and Rehabilitation Hospital in Kuwait

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¹ Occupational Therapy Students, Occupational Therapy Department

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Abstract

Introduction: Occupational therapists treat patients of all ages and a wide range of health conditions and disabilities. Understanding the demographics and numbers of patients in the different occupational therapy areas support providing better occupational therapy services and improving the occupational therapy education programs. The purpose of this study was to identify the prevalence of diagnosis and number of patients that were treated by occupational therapy professionals at the Physical Medicine and Rehabilitation Hospital in Kuwait.

Method: This research study is a retrospective, non-experimental study. The study design was a retrospective analysis using a de-identified data. It examined the number of each diagnose that were treated by occupational therapists in neuro, orthopedics, and pediatrics units for 2017, 2018, and 2019. The study also examined the number of patients that received care and treated by occupational therapy practitioners in neuro, orthopedics, and pediatrics, dysphasia, and seating units for 2015, 2016, 2017, and 2018 at the Physical Medicine and Rehabilitation Hospital.

Results: The study found steady decrease in neurology and orthopedic diagnosis. Most diagnoses in neurology was Cerebrovascular accident-left and in orthopedic was fracture. There were uneven increase and decrease in pediatric diagnosis, in which the most diagnose was development delay. The referral of Non-Kuwaiti patients decreased yearly in all occupational therapy areas except in seating unit. Additionally, the Kuwaiti patients slightly decreased yearly in all occupational therapy areas. In general males patients more than females patients in all areas except in 2017.

Discussion: The findings support the growing need of occupational therapy and the need of increase the number of occupational therapy practitioners in all hospital in Kuwait. There is an insufficient number of occupational therapists in some areas resulting in increased patient waiting list and lack of services quality. Increasing the number of OTs in all hospitals is important to optimize patient care and outcomes and to maximize productivity. As an occupational department in hospital, they should assist with case management in many of the areas where there is overlap among health care professionals. Additionally, OT program at Kuwait University should focus on the most diagnosis that treated by occupational therapy professionals in the last three years (from 2017 to 2019) in Kuwait hospitals

Keywords: Occupational therapy, diagnosis, disease, conditions, Kuwait.

View

Poster

Measure the extent of collaboration between occupational therapists and other health care professionals

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INTRODUCTION

Collaboration is when two individuals or a group of people work together towards achieving a common goal by sharing their ideas and skills. In Kuwait occupational therapist mainly collaborate with physicians, nurses, psychologists, physical therapists, and social workers. However, there has not been any study yet conducted investigating the degree of collaboration between occupational therapy and other health care professions . The aim of this study is to examine the collaboration between occupational therapy and other health care professions in the clinical setting .

METHODS

This study is a non-experimental, descriptive, and cross-sectional. A 143 participants will be recruited in order to complete this study. The inclusion criteria will be physicians, nurses and physical therapists . Two questionnaires will be used. First one is a social demographic questionnaire which includes participant's age, gender, years of experience, educational level, area of practice, year of graduation, and nationality. The second is the Inter-Professional Collaboration Scale (ICS).

RESULTS

A chi square test was performed to show the significant difference in collaboration and understanding between physical therapists, nurses and physicians with occupational therapists. The output of the One-Way ANOVA analysis showed that there was no significant difference ($F(2.93) = 1.955, p = .147$) between the groups in collaboration and understanding of Occupational Therapy. There is significant weak positive correlation between year of experience of the three professions with collaboration and understanding of OT. An independent-samples t-test was conducted to compare male and female with regard to their collaboration and understanding of occupational therapy. An independent sample t-test shows that there is a significant difference between Kuwaitis and Non-Kuwaitis OTs with years of experience In all three cases Non-Kuwaitis showed better understanding and collaboration with all three professions more than Kuwaitis.

DISCUSSION & CONCLUSION

The collaboration among occupational therapists and other health care professionals related to treatment was moderate and this indicates that these professionals don't have understanding about occupational therapists responsibility. Physical therapist had the best understanding of occupational therapists and this because of they move on from same college. Nurses and occupational therapist have enough understanding between them . Physicians had poor collaboration due to lack of time , role confusion, lack of referrals and overlap of roles. Finally , as years of experience increased , collaboration between professionals and understanding did increased.

KEYWORDS:

inter-professional collaboration, communication, occupational therapy.

View

Poster

A close-up photograph of a physical therapist's hands examining a patient's elbow. The patient is wearing a blue t-shirt. The therapist's hands are positioned around the elbow joint, with fingers gently palpating the skin and underlying structures. The background is a soft, out-of-focus light blue.

Physical Therapy

PT AWARDS

First

PT-2	Reem Alhasan, Shahad Alharran, Khulod Alqahtani, Alyah Abdullah	<u>The Knowledge and Attitudes of Occupational Therapy and Physical Therapy Regarding Role Overlap in Kuwait Ministry of Health Hospitals</u>
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Second

PT-3	Maali Eissa, Khadija Farhan, Zainab AlMhmeed, Rawan AlQahtan	<u>Burnout among Physical Therapists practicing in the state of Kuwait</u>
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Third

PT-1	Esraa Fahad, Masha'el Almutairi, Fatima Aladwani, Dalal Alkhaldi	<u>Balance Performance of Young Athletes in Kuwait</u>
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PT ABSTRACTS

No.	Student Name	Title
PT-1	Esraa Fahad, Masha'el Almutairi, Fatima Aladwani, Dalal Alkhaldi	<u>Balance Performance of Young Athletes in Kuwait</u>
PT-2	Reem Alhasan, Shahad Alharran, Khulod Alqahtani, Alyah Abdullah	<u>The Knowledge and Attitudes of Occupational Therapy and Physical Therapy Regarding Role Overlap in Kuwait Ministry of Health Hospitals</u>
PT-3	Maali Eissa, Khadija Farhan, Zainab AlMhmeed, Rawan AlQahtan	<u>Burnout among Physical Therapists practicing in the state of Kuwait</u>

Balance Performance of Young Athletes in Kuwait

Esraa Y Fahad, Mashael Almutairi, Fatima Aladwani, Dalal Alkhaldi and Dr.Sharifah Alragum

Department Physical Therapy/Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

Sport has a major role in society, and the State of Kuwait is interested in sports of all kinds. However, little is known about the postural control and balance performance in young athletes in Kuwait.

METHODS

Design: cross sectional descriptive study

Sample: 36 Kuwaiti athletes, males and females, aged 21 – 35 years were recruited from five sport clubs and Kuwait National Team.

Procedure: sociodemographic characteristics, overall health status, sport behavior and sport injuries information were collected. The Star Excursion Balance Test was used to test balance.

Ethical approval #2914

RESULTS

There was a significant correlation between balance scores and BMI in the left reach ($p < 0.05$) and between balance scores and the type of sport in the right reach and left reach ($p < 0.05$, $p < 0.01$). The correlation was not significant between balance and smoking. Moreover, a two-way ANOVA for repeated measures revealed a significant difference between the four types of sports in their balance performance ($p < 0.05$).

DISCUSSION & CONCLUSION

This study evaluated balance performance of young Kuwaiti athletes and set up a profile of their overall health status. We found that overweight athletes have the least reach distance scores since they have difficulty controlling their balance. Additionally, athletes playing Track and Field sports had the highest reach distance scores compared to the other ball games which can be related to the type of training they go through. It was noted that female athletes do not receive similar attention as the male athlete. Both male and female athletes should be given more attention, health care and proper rehabilitation equally.

KEYWORDS:

Balance, athletes, ball games, track and field.

[View](#)[Poster](#)

The Knowledge and Attitudes of Occupational Therapy and Physical Therapy Regarding Role Overlap in Kuwait Ministry of Health Hospitals

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INTRODUCTION

A high-functioning team and exceptional communication between health personnel is greatly recommended for the patient to attain maximal function and independence possible and gain the most benefit of the program.

METHODS

The Aim of the research is to study the attitudes and knowledge of physical and occupational therapists in Kuwait toward each other's roles and teamwork. Four hundred and eleven occupational and physical therapists participated in this study. A questionnaire developed by Felsher L. and Ross E. (1994) was modified and used in this study. The ethical approval number 9016 – 22/12/2019.

RESULTS

The therapists (91%) who interacted with each other surprisingly selected a multidisciplinary and interdisciplinary team approach (67%). Half of the participants agreed that there is an overlap of services by both professions (n=212, 51.6%) and 22.1% disagreed. Most participants indicated that there is lack of cooperation between the two professions (n=225, 54.7%). Moreover, 50.9% indicated that there is lack of knowledge of what the other team member does.

DISCUSSION & CONCLUSION

The therapists may not fully comprehend the discrepancies between these team approaches. Lack of cooperation between the two professions and the scarcity of knowledge of what the other team members do might be the cause role overlap. Clinical courses are recommended to help educate therapists who are working in the hospitals. Encouraging shared treatment sessions between both professions will help increase teamwork and decrease role overlap.

KEYWORDS:

Role overlap, Occupational therapy, Physical therapy, Attitudes

[View](#)[Poster](#)

Burnout among Physical Therapists practicing in the state of Kuwait

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Dr.Sameera AlJadi²

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²Associate Professor at Physical Therapy Department, Faculty of Allied Health Sciences, Kuwait University

INTRODUCTION

Burnout is considered a serious problem experienced by health care professionals, especially physical therapists. To our knowledge, no studies were conducted to explore the level and factors related to burnout among physical therapists practicing in the state of Kuwait.

METHODS

A cross sectional study was conducted among 150 physical therapists practicing in the state of Kuwait. The Maslach Burnout Inventory- Health Services Survey (MBI-HSS) and a demographic sheet, including personal information about participants' job, education, and health status, were completed. The MBI-HSS composed of 22 items that assess the levels of burnout across three dimensions, 1) emotional exhaustion (EE), 2) depersonalization (DP) and 3) personal accomplishment (PA). Descriptive statistics were calculated for demographics and MBI items. Two sample t-test were calculated to assess the differences between mean values. Frequencies and cross tabulation were calculated to compare burnout levels between socio-demographics. The T-test, ANOVA and Post-hoc were used to determine the association between burnout levels and demographics with alpha set at 0.05.

RESULTS

Response rate in this study was 98% (147 out of 150) with mean age of 38 years (± 8). Eighty-one (55.1%) of the participants were females. The results showed high level of DP and moderate levels of EE and PA. Females experienced higher levels of EE than males ($p=0.012$). Likewise, participants who had income <500KD were more emotionally exhausted compared with those who earn 1001-1500KD ($p=0.042$). The therapists who had salaries ranging between 1001 and 1500KD had higher PA level compared to those with salaries less than 500KD and 500-1001 KD, ($p=0.029$), ($p=0.006$), respectively. Participants who worked in governmental sector had higher EE and DP levels than those who worked in private sectors ($p=0.000$), ($p=0.024$) respectively.

DISCUSSION & CONCLUSION

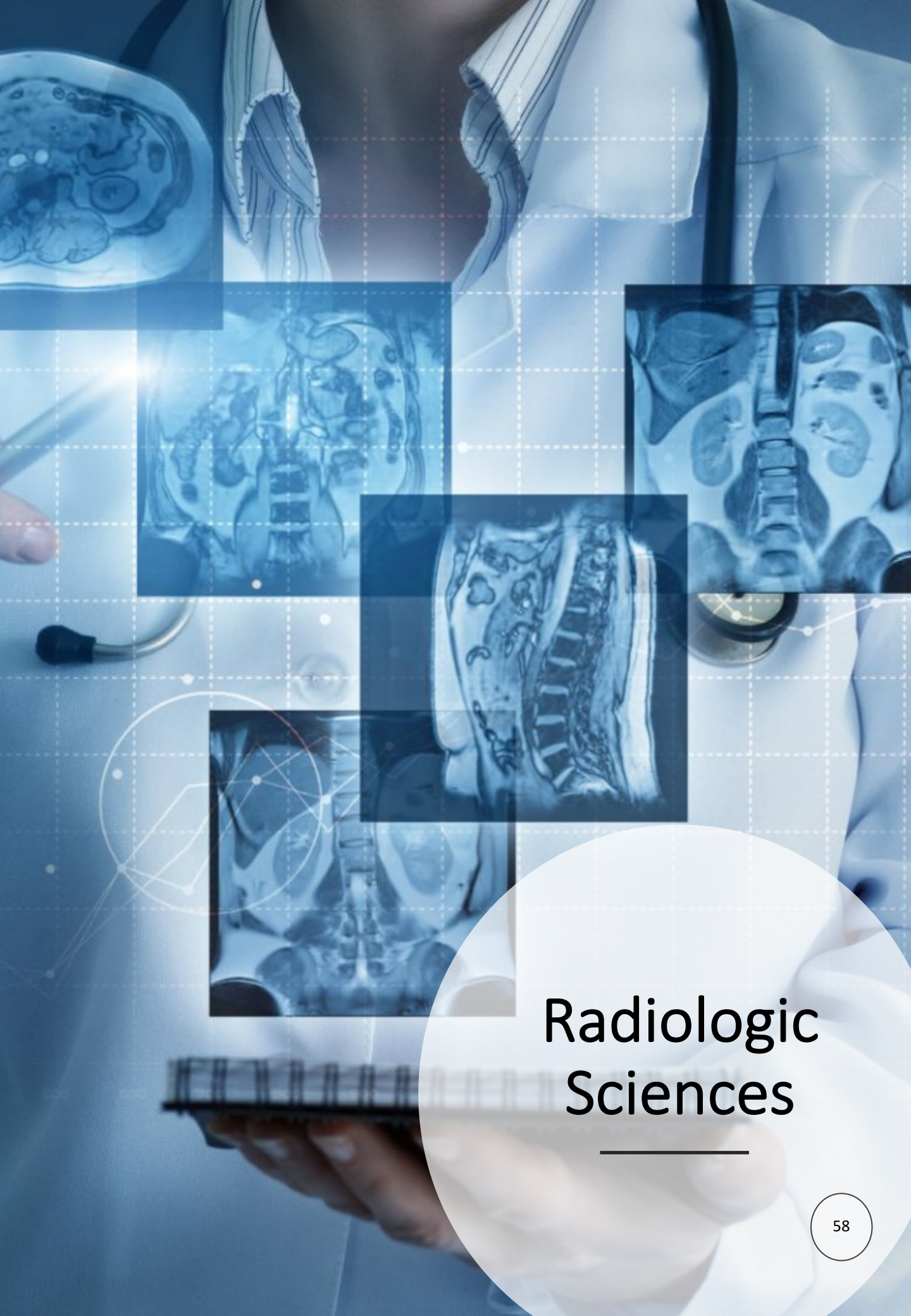
Physical therapists practicing in the state of Kuwait are at high risk of burnout. Females and practicing in governmental hospital along with higher income associated with higher levels of burnout. A support program should be established to help female therapists to prevent and cope with burnout. Moreover, law amendment should be reinforced to achieve gender quality at workplace. Finally coping strategies should be implemented in government hospitals to ensure physical and psychological wellbeing of physical therapists in Kuwait.

KEYWORDS:

Burnout, physical therapists, Kuwait, MBI

View

Poster



Radiologic Sciences

RS AWARDS

First

RS-7	Rawan Mohammad, Fatma Hasan	<u>Radiation Dose to Pediatric Patients in Computed Tomography</u>
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Second

RS-6	Reem Ali, Munirat Sanni, Dana Al-Tuwari	<u>Comparison between the recorded and measured radiation doses in diagnostic full-field digital mammography: a phantom study</u>
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Third

NM-1	Abeer Alhajri	<u>The impact of Time-Of-Flight (TOF) technology in correlation with Body-Mass-Index (BMI) using digital PET/CT MI in different oncology studies</u>
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RS ABSTRACTS

No.	Student Name	Title
NM-1	Abeer Alhajri	<u>The impact of Time-Of-Flight (TOF) technology in correlation with Body-Mass-Index (BMI) using digital PET/CT MI in different oncology studies</u>
NM-2	Sara Alanzi, Asrar Alenezi, Rahaf Abdullah	<u>Measurement of SUV in Bone Scan Using X-SPECT</u>
NM-3	Sami Al-Fadhli	<u>Evaluation of radiation dosimetry in prostate cancer patients receiving 177Lu-PSMA therapy, Retrospective study</u>
RS-1	Abdulhadi Altahuo, Rabab Alhaeri, Seydah Zahraa Emadi	<u>Different kVp Rules in Digital Radiographic Imaging</u>
RS-2	Ajyad Alshammari, Sara Alkandari, Taif Alsaeedi	<u>An Overview of Strategies for Dose Reduction in Pediatric CT Examinations</u>
RS-3	Amal Homood, Amirah Al-yaqoub, Sarah Al-enezi, Mariam Al-hammadi	<u>Radiation dose optimisation methods and exposure technique used in common examination in general radiography</u>

RS ABSTRACTS

No.	Student Name	Title
RS-4	Mariam Alenezi, Amna Alkhalidi	<u>The role of social media in dissemination of medical information</u>
RS-5	Aeisha Al-Mutairi, Moataz AlMarhoon	<u>Comparison between CT, US, Surgical and Histopathological findings in patients with appendicitis</u>
RS-6	Reem Ali, Munirat Sanni, Dana Al-Tuwari	<u>Comparison between the recorded and measured radiation doses in diagnostic full-field digital mammography: a phantom study</u>
RS-7	Rawan Mohammad, Fatma Hasan	<u>Radiation Dose to Pediatric Patients in Computed Tomography</u>
RS-8	Batoul Reyadh, Ruaa Abdullatif, Hawraa Hamoud, Nourah Al-Enezi	<u>The Ability of Magnetic Resonance Imaging to Evaluate Gastric Emptying: MRI Beyond Anatomy</u>
RS-9	Munera Aldaihani, Manar Almutairi, Zahraa Alhasan	<u>Public awareness of the types and hazards of medical radiation</u>

The impact of Time-Of-Flight (TOF) technology in correlation with Body-Mass-Index (BMI) using digital PET/CT MI in different oncology studies.

Abeer Alhajri

Supervisor: Layla Gadhanfar

Kuwait University, Faculty of Allied Health, Radiologic Sciences Department, Nuclear Medicine

Introduction:

Positron emission tomography (PET) is a tomographic technique provide a three-dimensional image based on the distribution of local radioactivity. The detection based on the annihilation of the photons that emitted by positron emitter labeled radiotracer. Time-of-flight (TOF) is the ability to measure the time distance between the pair annihilation photons improving time signal-to-noise ratio (SNR).

Aims:

To assess the impact of TOF technology in correlation with body mass index (BMI) using Digital MI PET/CT in oncology studies (F¹⁸-FDG and F¹⁸-NAF).

Methodology:

A 22 F¹⁸-FDG patient's studies and 13 F¹⁸-NAF patient's studies were selected with various BMI categories. Quantitative assessment was done by reconstructing all patients studies for 1 min/bed and four reconstruction techniques were used as follows: (TOF vs. Non-TOF), (TOF+Qclear vs. Non-TOF+Qclear). ROIs were drawn on the lesions and on the background to measure the signal to noise ratio and the gain was measured for each reconstruction setup. A final subjective assessment was performed by two of nuclear medicine physician.

Results:

Our results show a significant increase in the SNR when TOF. However, the correlation of SNR (gain) with BMI in F¹⁸-FDG and F¹⁸-NAF was very poor. The qualitative results show, the superior image quality that compensate between lesion detectability and noise in TOF images.

Conclusion:

In F¹⁸-FDG, quantitative assessment shows a significant SNR gain due to TOF. However, Different BMI has no effect on the degree of the improvement in image quality. This poor correlation has also been noticed in F¹⁸-NAF. A qualitative assessment by experienced physicians identified improved resolution of image detail, definition of small lesions, and image uniformity in studies incorporating TOF information.

Keywords:

Digital PET/CT MI, Time-Of-Flight (TOF), Body-Mass-Index (BMI).

View

Poster

Measurement of SUV in Bone Scan Using X-SPECT

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INTRODUCTION:

X-SPECT/CT Bone is a new reconstruction algorithm for single photon emission tomography (SPECT) that provides a quantitative analysis using standard uptake value (SUV). The primary aim of this study was to measure the SUVmax in bone scan using X-SPECT software, which can identify normal region, degenerative change and metastasis region.

METHODS:

We retrospectively analysed the data of patients who underwent bone scans. 15 normal patients visually and patients with bone diseases (degenerative change, metastasis, and different bone disease). The ROIs were drawn in certain normal region (hip, rib, lumbar vertebrae, and shaft of femur) in patient who visually normal, also, with abnormal patient ROIs were drawn in focal area in order to calculate SUVmax average. The comparison of SUVmax was done between the metastasis and degenerative changes. Also, the correlation between SUVmax with either BMI or age was done.

RESULTS:

The mean \pm SD of SUVmax for regions only in visually normal patient as following: hip, rib, and lumbar vertebrae, metatarsal and shaft of femur 13.5 ± 2.77 , 2.33 ± 0.38 , 12.68 ± 2.03 , 1.58 ± 0.55 , and 4.28 ± 0.43 , respectively. While, the abnormal mean \pm SD of SUVmax in focal regions as following: hip, rib, lumbar vertebrae, and metatarsal 24.06 ± 3.66 , 16.61 ± 9.96 , 21.58 ± 7.56 , and 7.12 ± 0.99 respectively. No correlation was found between SUVmax with either BMI or age. The percentage of SUVmax for the bone metastases (69.4%) was significantly higher than degenerative change (58.06%).

DISCUSSION & CONCLUSION

X-SPECT bone can identify and localize a small lesion by distinguish disease not easily seen with conventional SPECT, also have a high resolution that will help in diagnosing.

KEYWORDS XSPECT/CT, SUV, BMI.

View

Poster

Evaluation of radiation dosimetry in prostate cancer patients receiving ^{177}Lu -PSMA therapy, Retrospective study

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Introduction:

^{177}Lu Prostate-Specific Membrane Antigen Therapy (PSMA) is a therapy that is progressively arranged for individuals that have late stages of prostate cancer. Diminishing the extent of the tumor to a halt from reproducing is the goal of this therapy.

Aim:

To evaluate radiation absorbed dose of the normal tissue organs and tumor cells using manual dosimetry calculation. This will help us to optimize the dose of ^{177}Lu -PSMA to have the maximum effect on the cancerous tissue and the minimum impact on the normal tissues.

Methods:

WB images of 10 ^{177}Lu -PSMA scans were acquired at 4, 24, and 72 h post injection. ROIs were drawn on the critical organs and main tumor to calculate the geometric mean counts and the volume. Counts for each organ and lesion were converted to activity by $A = \text{Counts} / (\text{CF} \times T)$. Divide activity by mass of organ to obtain the absorbed dose.

Results:

The result is mean WB remainder = $(0.06 \pm 0.02 \text{ Gy})$ the mean left and right kidney = $(2.04 \pm 1.07 \text{ Gy})$ and $(1.97 \pm 0.9 \text{ Gy})$ respectively), which is relatively high due to the small mass of the kidneys. Liver dose = $(0.3 \pm 0.2 \text{ Gy})$, which is low due to the large volume of the liver even though there is a high amount of activity in the organ. The brain, the lung and the spleen are $(0.1 \pm 0.05 \text{ Gy})$, $(0.13 \pm 0.05 \text{ Gy})$ and $(0.84 \pm 0.4 \text{ Gy})$ respectively. The prostate main lesion received a mean dose of $(4.7 \pm 2.4 \text{ Gy})$.

Conclusions:

The critical organ was found to be the kidneys and the tumors have shown sufficient affinity of the radiopharmaceuticals.

View

Poster

Different kVp Rules in Digital Radiographic Imaging

Abdulhadi Altahuo, Rabab Alhaeri, Seyedeh Zahraa Emadi

Supervisor: Dr.Ajit Brindhaban

Department of Radiologic Sciences, Faculty of Allied Health Sciences, Kuwait University

Introduction:

Electronic image processing facilities in digital radiography (DR) systems allow radiographers to change exposure parameters such as X-ray tube voltage (kVp) and tube-current-time product (mAs). Unlike film-screen systems which use exposure rules like the 15% rule when changing exposure factors, DR systems do not have any established rules. The aim of this project is to explore any such rules for DR systems.

Methods:

A lumbar spine phantom was imaged using several combinations of kVp (70 to 110) and mAs (5 to 20) in three different DR systems. The radiation dose at the detector was measured using a RaySafe digital dosimeter. The images were analysed using ImageJ software by measuring average pixel values and their standard deviations in the bone and soft-tissue part of the image and position of the detector. Signal-to-noise ratio (SNR) was calculated in bone and soft tissue regions of the images. Any correlation between pixel values, SNR and exposure factors was analysed using Microsoft Excel. Pixel value at the detector was used to analyse exposure rules in DR.

Results:

Exponential relationships were found between SNR (bone and soft-tissue) and mAs when kVp was constant for the range of kVp values explored in one of the DR systems ($r > 0.866$). However, no correlation was found with other two DR systems. For 70 to 90 kVp, the 15% exposure rule was followed by some DR systems. For higher kVp, a 30% increase in kVp with 1/3 of mAs produced similar pixel values at the detector. This may lead to the establishment of a 30% exposure rule for some DR systems.

Conclusion:

Exposure rules can be established for DR systems in the form of 15% kVp rule and 30% kVp rule for different kVp ranges. Further investigations are needed before these rules can be applied in clinical practice.

[View](#)[Poster](#)

An Overview of Strategies for Dose Reduction in Pediatric CT Examinations

Ajyad Alshammari, Sara Alkandari and Taif Alsaeedi

Supervisor: **Dr. Raed Al-Saed**

Kuwait University, Faculty of Allied Health Science, Radiologic Sciences Department

Introduction:

Since its inception in the 1970s, the use of computed tomography (CT) has increased rapidly. It has become an essential tool in the assessment of a variety of disorders, including cancer, trauma, and inflammation. But its main disadvantage is the high radiation dose for both adult and pediatric age groups. As a result, concerns about radiation hazards associated with CT has increased. Individuals in pediatric age groups are more sensitive to radiation hazards because their cells are cumulative and their long life span. There should be proper considerations when pediatric individuals are subjected to undergo CT scan. CT in specific, has been known to deliver high effective doses, ranging from 2 to 6 mSv for a single pediatric CT examination compared to other imaging modalities. Therefore, it is important to apply the optimization principle (ALARA) of radiation protection and minimize the radiation dose consistent with diagnostic image quality. Literature also shows that it is possible to reduce radiation dose while using lower technical factors (kVp and mAs) and other technical issues while maintaining image quality.

Aim:

Therefore, the aim here is to provide a brief review of literature on practical/technical tips for reducing radiation doses to children and manipulating CT scanning parameters without compromising diagnostic quality.

Method:

Literature has been gathered from different search engines concerning different experiments and outcomes of various techniques used to reduce radiation dose received by pediatric patients.

Conclusion:

Advancement in CT technology is on progress nowadays. Automated scan protocols based on the clinical question and the anatomic region are being developed too along with new image enhancement methods to improve image reconstruction process.

[View](#)

[Poster](#)

Radiation dose optimisation methods and exposure technique used in common examination in general radiography.

Amal Homood¹, Amirah Al-yaqoub¹, Sarah Al-enezi¹, and Mariam Al-hammadi¹,
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INTRODUCTION

Automatic correction has positively contributed to the provision of high-quality diagnostically acceptable images. Nevertheless, the possibility of an exposure creep, as a results of automatic correction, exists; because correction hide possible exposure errors. Thus, several policies and practices such as As Low As Reasonable Achievable (ALARA) and Exposure Index (EI) to optimize radiation dose have been implemented.

METHODS

A descriptive research study based on a 26 question that will test the radiographers in Kuwaiti MOH hospitals practices toward optimization of radiation dose by applying the questionnaire.

RESULTS

We got 105 responses from radiographers of MOH hospitals. The major findings are most of the x-ray departments have standards to achieve the ALARA principal and exposure technique charts, and they work toward defining acceptable exposure index values and ranges in percentage 84%.

DISCUSSION & CONCLUSION

The establishment of EI has managed to significantly minimize exposure creep (1). However, lack of understanding concerning the selection of exposure factors and failure to preset these factors persist as legitimate factors that may increase the likelihood of exposure creep (2). Hopefully, this research boosts the benefits of monitoring of EI values into the radiology department.

KEYWORDS: Radiation dose optimization, Exposure creep, Exposure index.

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The role of social media in dissemination of medical information

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Supervisor: Dr. Ghadeer Albalool

INTRODUCTION:

Social media has become a must in our daily life routine and provides numerous ways of help. It is playing an essential role in influencing or directing any society, especially through news related to the medical field. Regardless of the credibility of news, it can be of huge impact. When false information is spread, it reduces the honesty of medical news. This will lead to a substantially negative impact on the society.

METHODS:

A Systematic Review of research studies investigating the spreading of rumors in social media in some countries. Target studies: research studies about false medical information in social media that people believe or affected by it that published in the past 5 years from 2015 to 2020. Data Collection Instrument: PubMed and Google Scholar were used to search for studies published between 2015 to 2020. Using Google Scholar search in Kuwait country, result of search 60 research studies. After filtering to what is applied for many countries, the result was 8 research studies were selected regarding of many countries. We did the questionnaire in Kuwait was published on 26\7\2020 and it was finished 21\8\2020. This questionnaire was solved by 600 people in Kuwait. It has 23 questions in Arabic and English forms. In Arabic form was answered 507, but in English form was answered 95. The types of questions are 20 multiple choice and 3 taken opinions. We use Microsoft forms and start published in many applications of social media such as: WhatsApp, snapchat, Instagram and Twitter.

RESULTS:

We did the questionnaire in Arabic and English. In Arabic form 507 peoples answered. On other hand 95 were answered in English. This questionnaire was involved 23 questions.

DISCUSSION & CONCLUSION:

results showed that WhatsApp was the most widely used sources of in Kuwait. On other hand, Facebook was the top application that spread wrong medical information in the literature review of many countries in the world. Our opinion not matching with the results of the questionnaire and literature review. Social media covers so many different kinds of websites and applications, the function of these tools to spread different types of information one of which is medial news. However, most social medial accounts are spreads fake news which have harmful effect to the development and the direction of medical field.

KEYWORDS: social media, internet, misinformation, medical field

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Poster

Comparison between CT, US, Surgical and Histopathological findings in patients with appendicitis

Done by: **Aeisha Al-Mutairi** and **Moataz AlMarhoon**

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Introduction:

The appendix is a diverticulum attached to the caecum. The acute appendicitis is one of the most common abdominal emergencies worldwide. The diagnosis of acute appendicitis is mainly clinical and is correct in about 80% of patients, but 20-33% present with atypical findings, which resulted in a negative appendectomy rate of 20-30%.

Aim:

To determine the sensitivity and specificity of computed tomography (CT) and ultrasound (US) in predicting acute appendicitis in relation to histopathology reports.

Method:

The method is detecting the accuracy via comparing those clinical reports as a positive or negative predictive value with the clinical surgical and histopathological findings from surgical department, which are the most accurate and precise, that the surgeons depend on. This study consisted of a retrospective chart review and analysis of medical records of patients diagnosed with acute appendicitis upon admission to Adan hospital and Farwaniya hospital.

Discussion & Conclusion:

We found that sonography is first line diagnostic tool and valuable in the diagnosis of appendicitis in children, inconclusive cases, pregnant women that is helpful in initial diagnosis of the patients but should be followed by performing additional abdominal CT either enhanced or unenhanced before transfer them to surgery to improve diagnostic accuracy and thereby in order to decrease the negative appendectomy rate without an increase in the perforation rate due to surgery or time consumption results in increasing of inflammation.

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Comparison between the recorded and measured radiation doses in diagnostic full-field digital mammography: a phantom study

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INTRODUCTION: Currently, there are concerns regarding the difference between directly recorded and measured entrance skin dose (ESD) and average glandular dose (AGD) in full-field digital mammography (FFDM). This study aimed to evaluate the effect of different exposure parameters on ESD and AGD recorded directly from an FFDM unit and measured using a phantom.

METHODS: The ESD and AGD of 27 FFDM (cranio-caudal projection) images of tissue-equivalent phantoms were acquired using a General Electric (GE Senographe Essential) FFDM unit. The phantoms were used to simulate three different breast thicknesses and compositions. Tube potential, tube load, and target/filter combinations also varied with ESD and AGD and were recorded directly from the FFDM unit, measured using a RaySafeX1 dosimeter.

RESULTS: The mean differences between the directly recorded and measured ESD and AGD were 0.23 and 0.080, respectively. The 95% confidence intervals for ESD and AGD were 0.1–0.36 and 0.1–0.04, respectively. Results of a one-sample t-test showed statistically significant difference between the directly recorded and measured ESD ($P=.001$) and AGD ($P<.001$). On Pearson's correlation test, a positive and significant correlation was noted between the directly recorded and measured ESD and AGD ($r=1$, $P<.001$). Although the difference between the directly recorded and measured ESD and AGD was small, it was statistically significant.

DISCUSSION & CONCLUSION: The directly recorded ESD and AGD from the FFDM unit are comparable to the measured ESD and AGD obtained using a RaySafeX1 dosimeter. This observation confirms that we can use the directly recorded doses obtained from an FFDM for quality control.

Keywords: Breast imaging, dosimetry, full-field digital mammography, average glandular dose, entrance skin dose

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Poster

Radiation Dose to Pediatric Patients in Computed Tomography

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INTRODUCTION

The use of ionizing radiation has increased significantly due to overwhelming use of computed tomography (CT) imaging in pediatric patients. In many cases, hospitals use patient's age rather than their size for the selection of appropriate imaging protocol. The aim of this study is to determine whether the different patient sizes have any effect on pediatric CT doses among hospitals in Kuwait.

METHODS

This retrospective study investigated 109 pediatric head CT studies taken from five local hospitals. The patient age, CTDIvol and dose-length product (DLP) were obtained from the Picture Archiving and Communications System. The anterior-posterior (AP) and lateral sizes of the patient were measured using the caliper within the image display. The patients were divided into 4 age groups – 0 to 1 Y, 1 to 3 Y, 3 to 8 Y and 8 to 13 Y old. Any correlation between dosimetric quantities, patient size and age was investigated using Microsoft Excel. Comparison between different age groups was done using t-test at $p = 0.05$.

(The ethical approval number for this study is FAHS Project# 15 of 2019/2020)

RESULTS

Statistically significant differences in CTDI or DLP were found among different age groups ($p < 0.001$), but not with different AP or lateral sizes ($p > 0.451$). Correlation between AP and lateral size exists for patients younger than 3 years old. No correlation between patient size and CTDIvol or DLP values was found. Patient age showed statistically significant ($r > 0.965$; $p < 0.04$) correlation with CTDIvol and DLP. The average CTDIvol and DLP ranged between 13.8 & 30.5 mGy and 200 & 488 mGy.cm respectively among the four age groups.

DISCUSSION & CONCLUSION

This study found that hospitals in Kuwait use age-based CT scanning protocols that may overexpose small size patients of older age. Size-based imaging protocols are recommended for appropriate radiation dose to patients.

KEYWORDS

CTDI, Dose-Length-Product, Pediatric imaging, radiation safety.

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The Ability of Magnetic Resonance Imaging to Evaluate Gastric Emptying: MRI Beyond Anatomy

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INTRODUCTION

Measurement of gastric emptying is of clinical value for a range of functional GI conditions. There are different methods available to measure gastric emptying like ultrasound, Gamma Scintigraphy (GS) and Magnetic Resonance Imaging (MRI). All of these methods have their advantages and disadvantage. The use of MRI has recently increased due to its lack of ionizing radiation, multi-planar ability, spatial resolution and richness of contrast mechanisms. In this study we investigated the ability of MRI to measure gastric volumes using a semiautomated software written in Interactive Data Language (IDL®).

METHODS

Anonymously MRI images from 20 patients from patients with GI disorders who have been scanned during the period from 2017 to 2019, were collected from the Picture Archive and Communication System (PACS) in Mubarak Hospital. A postprocessing software written by Dr. Caroline Hoad from the University of Nottingham was used to quantify gastric volumes. The inter-observer's variability was measured to assess the software reproducibility using intra-class correlation coefficient (ICC).

RESULTS

All 20 data sets were loaded and analysed using the gastric emptying software. The stomach contents (16.84 ± 14.26 ml) volume, the air (17.49 ± 9.21 ml) volumes and the total volume of stomach (34.32 ± 18.41 ml) in each data set were successfully measured. Excellent agreement ($r = 0.97$, $p < 0.0001$, $n=20$) was seen between the measurements of inter-observers. (Mean \pm SD)

DISCUSSION & CONCLUSION

This study showed that MRI can be used to quantify gastric volumes of solid, liquid or mix meals without the use of contrast media using simple semi-automatic software. This method showed excellent agreement between measurements of inter-observers which indicate the effectiveness and reproducibility of the software in measuring gastric volumes. The post processing software can be implemented in clinical arenas to measure gastric emptying using MRI. This may help the understanding of physiological and pathological gastrointestinal (GI) motor responses.

KEYWORDS:

MRI, Gastric volumes, Gastrointestinal disorders

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Poster

Public awareness of the types and hazards of medical radiation.

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Introduction:

This study is investigating the knowledge and the level of awareness of public about the concepts of the types of medical radiation examinations and the related danger of their uses in Kuwait. The study of Kuwait public was conducted between February and March 2020 and a questionnaire was circulated online between a sample of 200+ friends and relatives from adult males and females over the age of 21. It is hypothesized that the patients self-presented for ionizing radiation procedures and lack the requisite knowledge of the inherent risks associated with their use than patients prescribed for diagnostic purposes.

Methods:

A questionnaire was self-administered to general public and sent online to friends and relatives. Over two hundred who had participated in this study. The questions asked included a series of public knowledge about radiation types and risks. It was attempted to examine and compare the awareness and knowledge of the associated risks of ionizing radiation in common diagnostic radiological procedures on the Kuwaiti general public.

Results:

Prescribed people (n = 90) had a better awareness than self-presenting (n = 121) patients on all ionizing radiation awareness statements.

Discussion & Conclusion:

Most people who had participated in the study show lack awareness and knowledge on ionizing radiation, awareness through media should be more improved.

Keywords:

Medical Radiation, Public Awareness, Ionizing Radiation

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