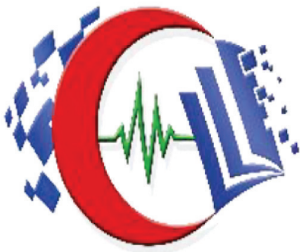

The First Libyan International Conference For Health Sciences

المؤتمر الليبي الدولي الأول للعلوم الصحية

28 - 29
سبـتمبـر
2024
طرابلس - ليبيا

إعداد : **أ. محمد عبدالوهاب الجابري**


جامعة ليبيا المفتوحة
Open University Libya

نبذة عن الجامعة

جامعة ليبيا المفتوحة مؤسسة تعليمية حكومية تتبع وزارة التعليم العالي والبحث العلمي تم انشائها سنة 1987 وتتبع في نظامها التعليمي عدة أنظمة تعليمية تشمل نظام التعليم التقليدي والتعليم المفتوح والتعليم عن بعد والتعليم الافتراضي

ومن خلال تنوع أنظمة التعليم المتبعة بها فقد منحت صفه الجامعة الذكية لكونها الجامعة الوحيدة بليبيا التي تعتمد أنظمة تعليمها تعليم انظمة التعليمية متعددة
وبالجامعة عدد 39 فرعا موزعة على كافة المدن الليبية وتمنح الجامعة المؤهلات العلمية منها الليسانس والبكالوريوس والماجستير والدكتوراه في العلوم الإنسانية والتطبيقية والطبية

حيث بلغ عدد الطلاب المسجلين بجامعه ليبيا المفتوحة ما يزيد عن 100,000 طالب طالبا وطالبا بكافة التخصصات العلمية وموزعه وموزعين على بكافة فروع الجامعة ومواكبة للتطور العلمي تم استحداث مقررات دراسية بالجامعة في ثقافة الذكاء الاصطناعي وثقافة التنمية المستدامة والبيئة

وتنتقي الجامعة اساتذتها ممن يتميزون بالخبرة والدراية العلمية وتقبل في عضويتها أعضاء هيئة التدريس ممن هم بدرجة أستاذ مشارك فما أعلى، ولها تعاون مع العديد من الاساتذة من الدرجات العلمية العالية والخبرة الاكاديمية الواسعة بالجامعات الليبية والعربية والدولية

للجامعه مجلتين علميتين محكمتين منها مجلة صدى الجامعه نصف سنويا مجلة جامعة ليبيا المفتوحة الرقمية وتستعد لإصدار سلسلة من المجلات العلميه المحكمه لعدداً من التخصصات منها : العلوم الإنسانية والاجتماعية والعلوم الإدارية والمالية والمحاسبية والعلوم القانونية والسياسية والعلوم الهندسية والعلوم الصحية

كما تعتبر جامعة ليبيا المفتوحة عضوا باتحاد الجامعات العربيه والافريقيه والاوروبيه وعضوا بالشبكة العربية للتعليم المفتوح والتعليم عن بعد وهي عضوا بمجلس اداره مسجد حوكمه الجامعات العربية وعضوا بمجلس اداره المجلس العربي للتدريب والابداع الطلابي باتحاد واتحاد UNIMED وعضوا باتحاد الجامعات المتوسطة WUACD الجامعات العربية وعضوا برابطه الجامعات العالمية للتنمية المجتمعية جامعه جامعات العالم الاسلامي FUIW

وتتريس جامعه ليبيا المفتوحه الجمعيه العربيه للتعليم المفتوح التابعه لاتحاد الجامعات العربية وتستضيف مقرها الدائم بالجامعه كما تستضيف الجامعة مكتب الاتحاد العربي للتنمية المستدامة والبيئة بدوله ليبيا

تتميز جامعة ليبيا المفتوحة باستضافتها واشرافها على مركز المؤتمرات وندوات وورش العمل التابعة لوزارة التعليم العالي والبحث العلمي

وفي اطار التعاون المستمر للجامعة فقد ابرمت العديد من الاتفاقيات ومذكرات التفاهم مع الجامعات والمراكز البحثية والمؤسسات المحلية والعربية والدولية

في IEEE وقد نظمت الجامعة العديد من المؤتمرات الدولية منها الملتقى المغاربي الأول للعلوم والتحكم الآلي وهندسة الحاسوب طرابلس سنة 2021

والمؤتمر الدولي حول التكنولوجيات الناشئة في ممارسة وتدريس اللغة العربية وتعليمها الذي نظمته الجامعة بالتعاون مع منظمه العالم بطرابلس سنه 2022 والمؤتمر الليبي الدولي الاول العلوم الصحيه الاي سي اتش اس بمقر ICESCO الاسلامي للتربية والعلوم والثقافة الجامعة بطرابلس خلال العام 2024
وللجامعة العديد من المشاركات في المؤتمرات وندوات ورش العمل على المستويات المحليه والعربيه والدوليه

البرنامـــــج الزمنـــــي لفعاليـــات المؤتـــمـــر

Schedule of conference activities

Day					
Friday 27/9/2024		Saturday 28/9/2024		Sunday 29/9/2024	
Time	Activity	Time	Activity	Time	Activity
9:00-12:00	workshops	8:00-13:30	Registration	09:00-09:45	Keynote Lectures
		10:00-11:30	Opening ceremony	09:45-10:45	Oral session 3
		11:30-12:00	Coffee break	10:45-11:00	Coffee break
		12:00-12:45	Keynote lectures	11:00-11:30	Keynote Lecture
		12:45-13:45	Oral session 1	11:30-12:00	Oral session 4
13:30-15:00	Lunch	13:45-15:00	Lunch	12:00-12:45	Round Table Discussion 2
14:00-18:00	Workshops	15:00-15:30	Keynote lectures		
		15:30-16:40	Oral session 2	12:45-13:30	Round Table Discussion 3
		16:40-17:00	Coffee break		
		17:00-18:00	Round Table Discussion 1	13:30-14:00	Closing Ceremony
				14:00-15:30	Lunch

اليوم					
الجمعة 27/9/2024		السبت 28/9/2024		الاحد 29/9/2024	
الزمن	النشاط	الزمن	النشاط	الزمن	النشاط
12:00 – 9:00	ورش عمل	8:00-13:30	التسجيل	9:00-9:45	المحاضرات الرئيسية
		11:30 -10:00	حفل الافتتاح	9:45-10:45	عرض الأوراق العلمية
		11:30-12:00	إستراحة القهوة	10:45-11:00	استراحة القهوة
		12:00-12:45	المحاضرات الرئيسية	11:00-11:30	المحاضرات الرئيسية
		12:45-13:45	عرض الأوراق العلمية	11:30-12:00	عرض الأوراق العلمية
13:30-15:00	استراحة الغذاء	13:45-15:00	استراحة الغذاء	12:00-12:45	مناقشة المائدة المستديرة 2
18:00 -14:00	ورش عمل	15:00-15:30	المحاضرات الرئيسية	12:45-13:30	مناقشة المائدة المستديرة 3
		15:30-16:40	عرض الأوراق العلمية	13:30-14:00	التوصيات والحفل الختامي
		16:40-17:00	إستراحة القهوة	14:00-15:30	استراحة الغذاء
		17:00-18:00	مناقشة المائدة المستديرة 1		

أهـــــداف المـــؤتمـــر

- إظهار دور التكنولوجيا والابتكار في تطوير التعليم الطبي
- التعريف بإدارة الأزمات الصحية وأهميتها في الحد من الكوارث والتقليل من أضرارها
- تبادل الخبرات والتجارب العلمية ودعم روح المنافسة
- ترسيخ دور البحث العلمي في المجال الصحي وتطوير الخدمات الطبية
- تشجيع التعاون العلمي بين الجامعات والمراكز الطبية
- تبادل الخبرات والمعلومات لاحدث الاكتشافات والطرق العلاجية للامراض
- تسليط الضوء على الاوضاع الصحية وتحديد أهم القضايا والتحديات والأمراض الرئيسية
- تعزيز دور الجامعة في نشر الوعي الصحي المجتمعي
- أطلاع المشاركين على احدث التطورات والابتكارات في مجال العلوم الصحية
- توطين المعرفة والتكنولوجيا الصحية
- مناقشة التحديات التي تواجه قطاع الصحة في ليبيا

محـــــــاور المـــؤتمـر

المحور الاول : واقع الخدمات والرعاية الصحية

يركز هذا المحور على تقييم وتقدير النظام الصحي الحالي في ليبيا بما في ذلك جودة الخدمات الصحية وأمكانية الوصول إليها وتكلفتها وعدالتها , قد يشمل أيضا مناقاشات حول البنية التحتية للرعاية الصحية وتمويل الرعاية الصحية والنتائج الصحية يساعد تحليل واقع الخدمات والرعاية الصحية في تحديد نقاط القوة والضعف ومجالات التحسين ولتعزيز الرعاية الصحية

المحور الثاني : التعليم والتدريب والبحث في المجال الطبي والصحي

يستكف هذا المحور الابتكارات والتطورات في مجال التعليم الطبي والصحي, بما في ذلك تطوير المناهج الدراسية, وطرق التدريس, وأستراتيجيات التقييم, والتطوير المهني المستمر للعاملين في مجال الرعاية الصحية, كما يشمل البحث الطبي والصحي بما في ذلك منهجيات البحث والاخلاقيات ونشر نتائج البحوث

المحور الثالث : التقنيات المتقدمة في الخدمات الصحية والتدريب

يسلط هذا المحور الضوء على أستخدام التقنيات المتقدمة في تقييم الرعاية الصحة بما في ذلك الطب عن بعد, والسجلات الصحية الالكترونية , والمعلوماتية الصحية , الذكاء الاصطناعي , والتعليم الالي , والروبوتات , والاجهزة القابلة للارتداء, والحلول الصحية الرقمية , كما يغطي دمج التكنولوجيا في التعليم والتدريب في مجال الرعاية الصحية

المحور الرابع : الوقاية من الامراض والكشف المبكر

يركز هذا المحور على أستراتيجات الوقاية من الامراض والكشف المبكر عنها , بما في ذلك التدخلات الصحية العامة, برامج التطعيم, الفحوصات الصحية, حملات تعزيز الصحة, تعديلات نمط الحياة, والمبادرات المجتمعية,قد يشمل أيضا مناقشة علم الأوبئة , أنظمة المراقبة , زإدارة الامراض السارية وغير السارية

المحور الخامس : الخدمات الصيدلانية وسلسلة الامداد الطبي

يناول هذا المحور القضايا المتعلقة بالخدمات الصيدلانية , إدارة الادوية , سلامة الادوية ,الالتزام بالعلاج, الرعاية الصيدلانية , ومراقبة الادوية, كما يغطي سلسلة الامداد الطبي , بما في ذلك شراء الادوية, التخزين , التوزيع , ومراقبة الجودة

كلمـــة رئيس الجامعة

بسم الله الرحمن الرحيم
والصلاة والسلام على سيدنا محمد وعلى آله وصحبه أجمعين
السيد معالي / وزير التعليم العالي والبحث العلمي
السيدات والسادة الضيوف الأعزاء

أ . د / أبوالقاسم محمد شلوف
رئيس جامعة ليبيا المفتـــوحة

السلام عليكم جمعياً
أصالة عن نفسي ونيابة عن جميع الزملاء بجامعة ليبيا المفتوحة أن نرحب بكم جميعا بعـون الله سـيقوم بعد قليل معالي وزيـر التعليم والبحث العلمـي برفقة نائب رئيس الحكومة ووزير الصحـة المكلف والامين العام لاتحاد الجامعات العربية بأفتتاح المؤتمر الليبي الدولي الاول للعلوم الصحية
يسـعدني أنـا وجميـع العاملين بجامعـة ليبيـا المفتوحة واللجنـة التحضيريـة واللجنة العلمية للمؤتمر الليبي الدولي الأول للعلوم الصحية
The First Libya in lernafi and Conference For Health Sciences

والذي تنظمه جامعة ليبيا المفتوحة برعاية وزارة التعليم والبحث العلمي والذي يهتم بمناقشة المسائل البحثية في المجالات التالية

ـ واقع الخدمات الصحية وجودتها
ـ التقنيات المتقدمة في الخدمات الصحية
ـ الخدمات الصيدلانية وسلسلة الامداد الطبي أعتماداً على أن الصحة للجميع وهي حق أنساني و أساس التنمية المستدامة والامن والسلام

-: أيها السيدات والسادة
من مهام الجامعات ربطها بالمجتمع لنشر الوعي الصحي المجتمعي من خلال التعليم والتدريب والبحث العلمي والبحث الطبي والصحي وتطبيق التقنيات المتقدمة في الخدمات الصحية والتي تشـمل السـجلات والالكترونية وأجهزة التشـخيص الطبي والذكاء الاصطناعي .. في التشخيص والعلاج
اليوم وغدا بأذن الله سـيتم عرض ومناقشـة العديد من المسـائل العلمية قيد البحث في مختلف التخصصات الطبية التي تم قبولها من قبل نخبة من الاساتذة المتخصصين المشهود لهم في المجال الطبي والصحي حيث تم قبول بعض الأوراق البحثية التي تواكب التقدم العلمي في مجال العلوم الصحية عسى أن تصل الى الغاية والهدف من هذا الملتقى العلمي المميز
ومـن خلال مناقشـة الأوراق البحثيـة والنقاش مع بعضنا البعض سـنتمكن من الحصول على نتائج قد تضاهي فـي الكثير من الأحيان ما سنحصل عليه في المعامل بأسرع وقت وأقل تكلفة و جهد

-:أيها السيدات والسادة
اليوم نحن سـعداء لوجودكم معنا في جامعة ليبيا المفتوحة هذه القلعة العلمية التي تم انشـاؤها سـنة 1987م وهي جامعة حكومية تتبع وزارة التعليم العالي والبحث وهي عضو في اتحاد الجامعات العربية والأوربية ومنظمة العالم الإسلامي وعضو في الشبكة العربية للتعليم المفتوح والتعليم عن بعد وبها سـبعة وثلاثون مركز تعليماً موزعة على معظم بلديات بلادنا العزيزة ليبيا وتقبل في عضويتها من درجة أسـتاذ مشـارك فما أعلى وتتبع نظام الدراسـة في الجامعة عدة أنظمة منها النظام التقليدي والتعليم المفتوح والتعليم عن بعد والتعليم الافتراضي وعدد الطلبة المسجلين بها يزيد عن 100000 مائة ألف طالب وطالبة

-: أيها السادة الأعزاء

تحيـة تقديـر الى السـيد معالي وزير التعليم والبحث العلمي الاسـتاذ الدكتـور عمران محمد القيب على أهتمامه بالجامعات ومؤسسـات التعليم العالي والبحث العلمي ومساعدته غير المحدودة لجامعة ليبيا المفتوحة

تحية تقدير للأمين العام لاتحاد الجامعات العربية أ.د عمرو سلامة لوجوده معنا هذا اليوم ولتشـجيعه لبعض رؤسـاء الجامعات ونخبة من العلماء للمشاركة في هذا الحدث الدولي المميز في مجال العلوم الصحية

تحية تقدير للسيد الأستاذ الدكتور زكريا شهاب لتواصله مع الجامعة في التنسيق والتنظيم والاستشارات العلمية والمتابعة طيلة الإعداد لهذا الملتقى

تحية تقدير وترحيب بكل امنا الاتحادات والمجالس المتواجدين معنا وبكل الاخوة المشـاركين والضيوف الذين جاءوا للمسـاهمة في هذا الحدث العلمي وأيضا تحية تقدير للمشاركين عن بعد وكل من أسهم وجعل هذا اللقاء ممكن

تحية تقدير لكافة اللجان التي ساهمت في الاعداد والتنظيم والتقييم وكل الجهود التي بذلت لانجاح هذا الحدث العلمي في موعده

-:وفي الختام

أسأل الله لكم التوفيق وجعل النجاح سبيلكم في كل الجهود التي بدلتموها لانجاح هذا الملتقى والوصول الى توصيات يمكن الاستفادة منها وسهولة تطبيقها في المجالات الصحية المختلفة

ونتمنى للضيوف الأعزاء إقامة طيبة في ليبيا حفظكم الله جميعا
والسلام عليكم ورحمة الله وبركاته

كلمة أمين عام اتحاد الجامعات العربية

معالي الأستاذ الدكتور عمران القيب، وزير التعليم العالي والبحث العلمي
سعادة الأستاذ الدكتور أبو القاسم شلوف، رئيس جامعة ليبيا المفتوحة

أ.د عمرو عزت سلامة
امين عام اتحاد الجامعات العربية

الحضور الكرام
السيدات والسادة
اسمحوا لي أن استهل كلمتي اليوم بالإعراب عن امتناني وتقديري لجامعة ليبيا المفتوحة ممثلة برئيسها الأستاذ الدكتور أبو القاسم شلوف على الدعوة الكريمة لي للتحدث في هذا المؤتمرحول العلوم الصحية، كما يسعدني أن اشارك هذه النخبة الطيبة من العلماء والخبراء المشاركين في أعمال وجلسات هذا المؤتمر، لتبادل الرؤى والأفكار لتعزيز الصحة
تمثل الصحة الجيدة الأساس لتحقيق التنمية الاقتصادية والاجتماعية المستدامة والتي تؤثر بشكل كبير على حياة الأفراد والمجتمعات. فالانسان الذي تتكامل له صحة نفسية وجسدية هو الإنسان القادر على العمل و الانتاج وتحقيق أهداف التنمية. وأثبتت جائحة كورونا أن كل شيء معرض للخطر عندما تتعرض الصحة للخطر، ولهذا السبب يجب ألا يُنظر إلى الصحة على أنها تكلفة، بل استثمار في إقامة مجتمعات منتجة ومزدهرة

تُظهر الدراسات أن تحسين الصحة العامة يمكن أن يزيد من الإنتاجية الاقتصادية بنسبة تصل إلى 20%. فالأفراد الأصحاء يكونون أكثر قدرة على العمل بكفاءة وأقل عرضة للغياب عن العمل بسبب المرض
ويُشير البنك الدولي إلى أن الاستثمار في الصحة يمكن أن يؤدي إلى زيادة الناتج المحلي الإجمالي بنسبة 2% سنويًا في الدول النامية، مما يعزز التنمية المستدامة ويخفف من الفقر
السيدات والسادة
أبرزت جائحة كورونا المكانة المركزية للصحة والتعليم والتضامن العالمي وأهمية تقنيات الثورة الصناعية الرابعة والخامسة وخاصة الذكاء الاصطناعي التي مكنت الجامعات من الانتقال الى التعليم عن بعد، كما مكنت وتمكن الأنشطة التجارية من الاستمرار مع الحفاظ على الانضباط الاجتماعي. في مجال الصحة أسهمت أنظمة الذكاء الاصطناعي في تشخيص الأمراض بدقة تتجاوز 90%، مما أسهم في إنقاذ
يُتوقع أن يوفر الذكاء الاصطناعي ما يصل إلى 150 مليار دولار في الإنفاق الصحي ، Accenture العديد من الأرواح. ووفقًا لتقرير من العالمي بحلول عام 2026
إن الجامعات تُعد منارات للعلم والمعرفة، وتلعب الجامعات دورًا حيويًا في التعليم والتدريب، حيث تُعد مصدرا لإعداد الكوادر الطبية المؤهلة، من الأطباء والممرضين إلى المتخصصين في الرعاية الصحية. وفقًا لتقرير صادر عن منظمة الصحة العالمية، يساهم التعليم الطبي الجيد في تحسين جودة الرعاية الصحية وتقليل الأخطاء الطبية، مما يؤدي إلى تحسين نتائج الصحة العامة. إلى جانب ذلك، تساهم الجامعات في

البحث العلمي والابتكار، حيث تعتبر الجامعات مؤسسات محورية للأبحاث التي تؤدي إلى اكتشافات طبية جديدة وتطوير تقنيات علاجية مبتكرة. على سبيل المثال، جامعة أكسفورد كانت في طليعة تطوير لقاح كوفيد-19، مما ساهم في إنقاذ حياة الملايين حول العالم
تُقدم الجامعات أيضا الرعاية الصحية من خلال المستشفيات والمراكز الطبية التي تديرها. هذه المؤسسات لا تعمل فقط على تقديم العلاج للمرضى، بل تعمل أيضًا كمراكز تدريب وأبحاث، مما يساهم في تحسين جودة الرعاية الصحية المقدمة
كما تساهم الجامعات بشكل فعّال في صياغة السياسات الصحية من خلال الأبحاث والسياسات المستندة إلى الأدلة. تبين التقارير العالمية أن الأبحاث التي تجريها الجامعات تلعب دورًا حاسمًا في تقديم المشورة للحكومات وصانعي السياسات حول كيفية تحسين نظم الرعاية الصحية الوطنية. وبالإضافة إلى ذلك تعمل الجامعات على تعزيز التعاون الدولي وتبادل المعرفة وأفضل الممارسات على نطاق عالمي

الحضور الكرام

يضـم اتحـاد الجامعـات العربية في عضويته قرابة 450 جامعة عربية ويمثل الاتحاد أحد أهم مؤسسـات العمل العربي المشـترك وبصفته منصـة للجامعـات العربيـة وأصحاب المصلحة المعنييـن بالتعليم العالي في المنطقـة، وضمن خطته الاسـتراتيجية ركزعلى بناء اتجاهات البحث نحو مجتمع المعرفة، واسـتثمار مسـتحدثات الثورة الصناعية الرابعة وبيئة الذكاء الاصطناعي، والارتقاء بمسـتوى المشـاريع التي تحتاجها المنطقة في الحاضر والمستقبل وتهيئة الخريجين لوظائف جديدة تتناسب مع التغيرات الهائلة في العالم.

و التزاما بتحقيق أهداف التنمية المستدامة أنشأ اتحاد الجامعات العربية المجلس العربي للتنمية المستدامة في الجامعات العربية لتفعيل دور مؤسسـات التعليـم العالـي العربيـة، وإعداد الإنسـان القادر على خدمة أمتـه العربية، وتشـجيع مراكز البحث العربية المشـتركة، وربط موضوعاتها بالأوضاع الاقتصادية والاجتماعية.

وأود أن أنوه الى أن الاتحاد يقدم الكثير من الجوائز العلمية للبحث العلمي ومشاريع التنمية المستدامة

وأخيرا

إن الحاجـة إلـى تطوير التعليـم الطبي والصحي أمر ضروري لتزويـد طلاب الطب والعلوم الصحية بالمعارف والمهـارات، وتمكينهم من أن يكونوا أطباء وممرضين وصيادلة أكفاء.

ان الهدف المتوخى في نهاية المطاف لجميع الأنشـطة الإنمائية، سـواء تلك التي تهدف إلى مقاومة الأمراض وتحسـين إمدادات الغذاء والمياه أو إلى جعل المدن مأمونة هو الحفاظ على حياة الإنسان بصحة جيدة.

أكرر شـكري لجامعة ليبيا المفتوحة وللدكتور أبو القاسـم شـلوف، رئيس الجامعة ورئيس المؤتمر وللقائمين على تنظيم هذا المؤتمر، كما أتقدم بالشكر للمشاركين الباحثين والحضور الكرام

كلمة وزير التعليم والبحث العلمي

بسم الله والصلاة والسلام على رسول الله
أسعد الله صباحكم
نرحب بالسيد الامين العام لاتحاد الجامعات العربية / أ.د عمرو عزت سلامة.
. أحييه وأحيي فريقه ونحن سعداء في السنوات الاخيرة لان لدينا عمل جيد مع أتحاد الجامعات العربية
السيد الامين العام للمجالس العربية للبحث العلمي والذي أخصة بكلمتي هذه
والسيد الامين العام لمركز التنمية المستدامة
ورئيس مجلس التدريب والابداع الطلابي
نرحب بكم جميعا ونرجب بضيوف ليبيا

أ.د عمران القيب
وزير التعليم العالي والبحث العالي

أيها السادة أصبحت جامعاتنا إشعاع لمجتمعنا المحلي
اسـمحوا لـي أن أنتهز هذه الفرصـة لتوضيح بعض الامور وكيفيـة العمل في الظروف الصعبة التي مرت وتمر بنا وكيف ننتشل مؤسساتنا وسط هذا الوضع الصعب
وصلنا الان لمرحلة من الرضاء للنقلة التي وصلت إليها جامعاتنا وهذا وضع جيد تجاوزنا بعض المشـاكل مثل البنية التحتي ووضعية الاستاذ وتوفير المعامل و بإمكاننا تقديم موقف تعليمي صحيح
أيهـا الحضـور نحن نمر برهان صعب أمام المجتمـع الليبي فيما يقدمه من خدمات طبية ومـا تقدمـه جامعاتنا علما بـأن لدى كليات الطـب الإمكانيات التي تـوازي الإمكانيات المتاحة في أعتى الكليات خارج ليبيا
السادة الحضور أنه من الواجب أن نستحضر بعض المشاكل التي تمر بها مؤسساتنا كي نستطيع أن نتقدم أكثر أن نعمل على إيجاد حل هذه الإشكاليات

السـادة الحضور من خلال زياراتي للعديد من المؤسسـات خارج ليبيا فأنني أطمأنكم بأن الوضع في ليبيا جيد وهذ لا يعني أن نقف على بعض العقبات والنقاط السلبية كي نستطيع العمل عليها وأن نتقدم أكثر
أن خطتنا في السنوات السابقة تسير بشكل جيد وكل يوم نخطوا خطوة مهمة ومفصلية
في العام الماضي عملنا على الاعتماد المؤسسـي وهذا العام سـوف نعمل على البحث العلمي ولابد أن نعمل على الرقمنة والتشـبيك العالمي
نتوجه بالشكر لجامعة ليبيا المفتوحة في تنفيذ مثل هذه المؤتمرات على هذا المستوى وهذه فرض علينا أن نعمل معها وندعمها وهذه جهود تتدكر فتشكر
السادة الحضور
أن وظيفـة رئيـس الجامعـة هو رفع تصنيف الجامعة بالدرجة الاولى ووظيفة الوزير أن تكون الجامعة اقوى مؤسسـة في ليبيا والاسـتاذ الجامعي تكون وظيفته أفخم مهمة في ليبيا وهذه مسؤليتي
أيها السادة الاستراتيجية الوطنية للتعليم العالي في نهايتها ونحن نعمل عليها منذ ثلاث سنوات ماضية وأطلع عليها كل الليبين وسيعلن عنها في مؤتمر وطني عام ولديها اهداف ورؤية واضحة

اليوم لدينا مكتبات عالمية ودخلنا الرقمنة والتصنيف والنشروتعاملنا مع الصعوبات المتراكمة منذ خمسين عاما وأغلقنا بابها
أيها السادة نعلن لكم اليوم أن هذه السنة هي سنة البحث العلمي
.أدعوا أتحاد الجامعات العربية وأدعو المجالس أن يتعاونوا معنا وأن يدعمونا
اتمنى التوفيق لهذا المؤتمر المهم والهام وحضوري كان لقوة المحتوى في هذا المؤتمر والاسماء الحاضرة والعلماء وخاصة في التعليم الطبي الذي يعاني كثيرا في ليبيا
السادة الحضور نحن مصرين أن تكون في مصاف الدول المتقدمة ونحن على ثقة في علمائنا ومؤسساتنا

أتمنى لكم التوفيق وأشكركم

كلمة وزارة الصحة

بسم الله والصلاة والسلام على رسول الله
السيد معالي وزير التعليم العالي والبحث العلمي
السيد رئيس الجامعة المفتوحة
السيد رئيس المؤتمر ورئيس اللجنة العلمية للمؤتمر
السادة رؤساء اتجاد الجامعات العربية وأتحاد مجالس البحث العلمي
السادة الخبراء
السادة العمداء

يسعدني أن أكون في هذا المؤتمر وهو يغطي أكثر من ركيزة للصحة العامة مثل تنمية الموارد البشرية والامداد والمعلومات والبيانات السـادة الحضور أن المشـروع المشـترك بين التعليـم والصحة يعتمد علـى الجمع بين إيصال الخدمـة وبين التعليم والتدريـب وبين البحث العلمي وهو في مراحله الاخيرة
السادة الحضور نحن نعي جيدا اهمية البحث العلمي في هذا المجال ونحن سعداء بينكم و ننتظر نتائج هذا المؤتمر
أن العمل التعليمي الطبي مرتبط أرتباط وثيق بالخدمة الطبية المتقدمة والتي بدورها مرتبطة بالصحة العامة ونحن نعدكم على العمل بمخرجات هذا المؤتمر

شكرا لكم والسلام عليكم ورحمة الله وبركاته

التوصيـــــــــــات

- العمـل على وضع اسـتراتيجية متكاملـة لتطوير الخدمات الصحية بمشـاركة جميع الجهات ذات العلاقة بالتخطيط الصحي والشـركاء من القطاعات الاخرى ودعم مؤسسة الرعاية الاولية
- تطوير التعليم الطبي لكافة العناصر الطبية والطبية المساعدة لتحسين المخرجات المستهدفة خدمة للمجتمع
- تحسـين جـودة البحـث العلمي وفقـاً لمتطلبات المجتمـع المحلي والعالمـي وتعزيز التعاون والمشـاركة بين الباحثين وصناع السياسـات وأصحاب المصلحة لتحسين العملية التعليمية والخدمات الصحية
- اسـتخدام الـذكاء الاصطناعـي فـي التعليم والتدريـب والتقييم للرفع من كفـاءة وجودة وفاعليـة العملية التعليميـة والتدريبية لتحقيق الأهداف وتحسين المخرجات ومنع توظيفه في انشطة غير قانونية وغير أخلاقية تضر بالمجتمع
- تعزيز برامج الوقاية من الامراض والكشف المبكر
- تبنـي سياسـات جديـدة في توفير الادوية والمسـتلزمات والمعـدات الطبية وتشـديد الرقابة علـى الادوية وطرق اسـتيرادها وتخزينها وتوزيعها

قائـــمة المحتـــويات

Medical Student's psychological disorders

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Keywords:
Counting People, Face Detection, People Detection, Viola Jones LBP, Viola Jones CART.

Abstract:

The Faculty of Medicine is a factor that has a significant impact on the lives and health of students.
This project aims to shed light on the psychological life of the students of the College of Medicine, during their enjoyable and arduous journey in their long years of study.
This project is designed to provide the best possible support to students with certain mental health conditions.
Drawing attention to the importance of helping them explain their psychological states, and focusing on the necessity of mental health wellness for students during their school years.
This project includes some psychological conditions in medical students during their student years, through research and studies that showed symptoms related to depression and generalized anxiety, in addition to other common psychological disorders.
These psychological cases, based on studies and research, raise many important questions and interpretations, namely that the problem may be concentrated in the students themselves, as they are usually hardworking and emotional people, and therefore they are more prone to anxiety and depression, or that the problem is related to the method of teaching the Faculty of Medicine, Where the study of medicine requires effort and long study hours, and in advanced steps, the student needs wisdom and flexibility in dealing with patients and cases of death of patients.
The psychological disorders that we want to study among the medical students are:
Depression, Anxiety, Psychological Burnout ,the Medical student's syndrome , the Impostor syndrome and The Ideal student. And every one of this psychological disorder is well known to most of us.
And we will talk about the results later , but now here are Some recommendations for medical students:

1. Learn to manage time and focus on the goal.
2. Develop the skill of adapting, acquiring the skills that are supposed to help you during your years of study in the College of Human Medicine.
3. Rethink how you define failure.
Being a good student does not mean that you will never make mistakes. Mistake is the key to learning & growth.
4. Paying attention to identities and not indulging in studying all day long.
5. Focus on your strengths and achievements.
6. Doing sports.
7. Maintain supportive social relationships.
8. Consult those around you in case you feel the problem.
9. Refer to a specialist for treatment.

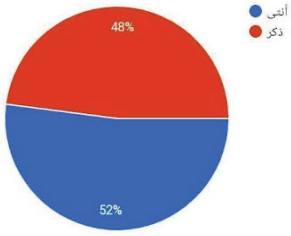
Results :

- Human medical students show symptoms of depression and anxiety in a large proportion among them.
- The human medical students suffer from psychological burnout greatly, because of the anxiety of getting a low grade or because of getting a low grade.
- The percentage of students who study medicine at the request of the parents is not small, which causes these students to feel that they are not in the right place for them.
- Medical student syndrome is widely spread among human medical students, and they show symptoms of this syndrome.
- Many medical students feel impostor syndrome, and suffer from problems with self-confidence, stress, and fear of evaluation.
- A large percentage of them feel that they do not deserve to enter the Faculty of Human Medicine.
- The idea of the ideal student exists within the life and desires of the medical student. It has caused him a problem in his life.
- One of the very sad results and the need to take it into account is that a very small percentage of human medicine students tried to explain their psychological state or visit a psychiatrist.
- Many medical students think that the problem may be with medical education.
- It has also been observed that medical students in private universities suffer from psychological burnout more than students of public universities. This is due to mandatory attendance and financial burdens.

The Questionnaire

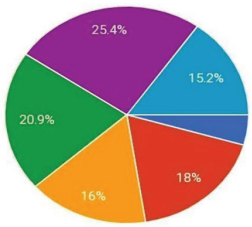
A random sample was taken from medical students at Damascus State University, Syrian Private University, and Al-Sham Private University.
The questionnaire was answered by 250 medical students in the College of Medicine.

Form Link



Gender:

48% female
52% male

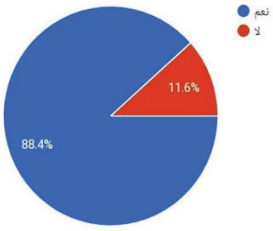


Academic year:

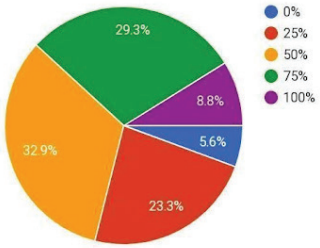
4.5% first year
18% second year
16% third year
20.9% forth year
25.4% fifth year
15.2% sixth year

What is the extent of this effect?

88.4% Yes | 11.6% No

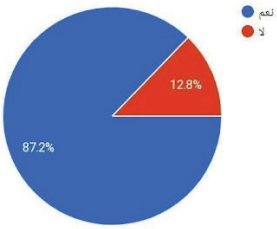


Did your feeling of anxiety while studying medicine have a significant impact on your life and studies?



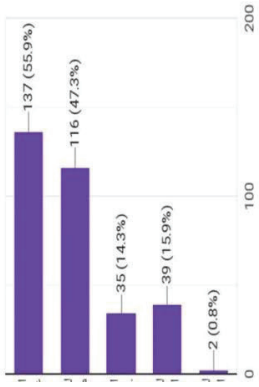
Did you ever feel depressed during your medical school years?

87.2% yes | 12.8% no



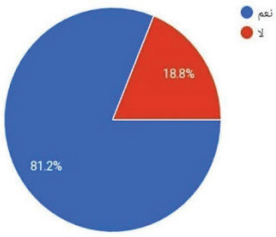
Have you felt burnout as a result of:

- 137(55.9%) afraid of having low
- 116(47.3%) afraid of getting low marks
- 35(14.3%) feeling low psychological burnout 2(0.8%) never felt psychological burnout

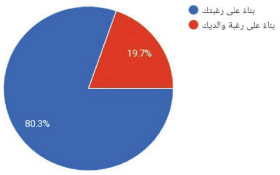


Have you ever felt burnout?

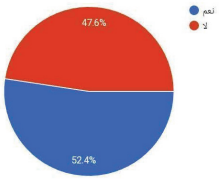
81.2% yes | 18.8% no



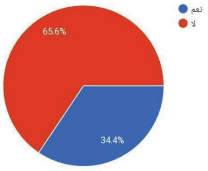
Was your study at the Faculty of Medicine based on your dreams or obeying your parents' wishes ?
9,7% for my parents | 80.3% for myself



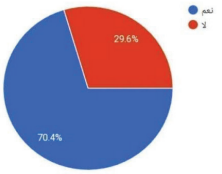
Have you ever felt that you are not in the right place for you?
47.6% yes | 52.4% no



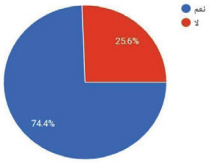
Have you ever thought about changing the College of Medicine, but you were not able to?
65.6% yes | 34.4% no



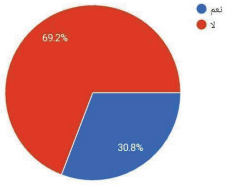
Have you ever read about a disease and felt that you have this disease or that you suffer from the appearance of its symptoms?
70,4% yes | 29.6% no



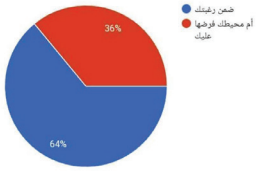
Have you ever read about a disease, done tests, or examined yourself to ensure and check on your health condition?
74.4% yes | 25.6% no



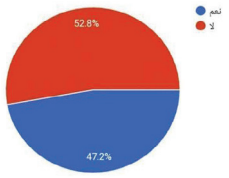
Have you ever had the idea that being a medical student you should be the ideal student?
69.2% yes | 30.8% no



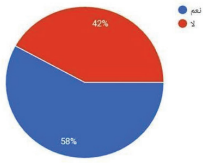
If your answer is yes, was this idea:
- within your wish 64%
- Or your surroundings imposed on you 36%



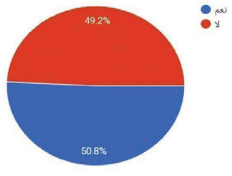
Have I ever caused you a problem?
47.2% yes | 52.8% no



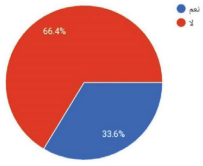
Have you ever looked around and felt that it was only a matter of time before someone found out that you are not as competent as you appear to people?
58% yes | 42% no



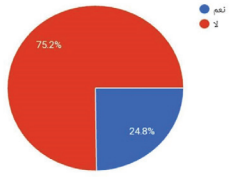
Have you been asked a question by your supervisor or one of your relatives, friends or neighbors....and despite your knowledge of the answer, you did not answer?
50.8% yes | 49.2% no



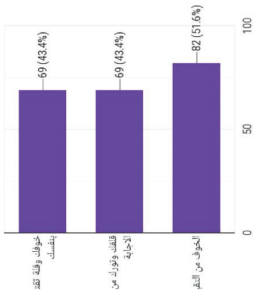
Have you ever felt that you do not deserve to enter the Faculty of Human Medicine?
66.4% no | 33,6% yes



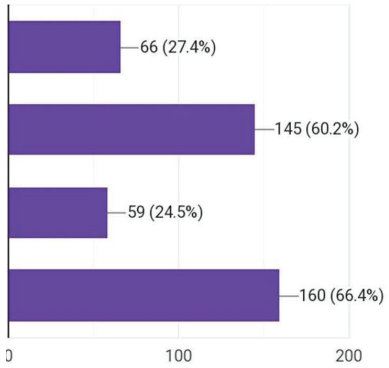
Have you tried to explain this situation?
75.2% no | 24.8% yes

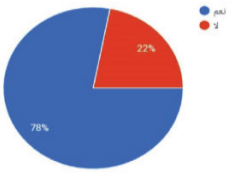


Was it because:
Feeling low self steam 69(43.4%)
Stressed of knowing the answer 69(43.4%)
Fear of judging 82(51.6%)

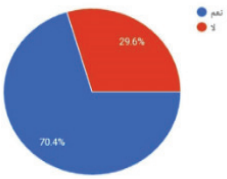


What are your suggestions for improving medical education and the psychological state of medical students? Having healthy cheap meals 66(27.4%) getting psychological support programs 145(60.2%) conducting more psychological studies 59(24.5%)
having high levels of mental health 160(66.4%)

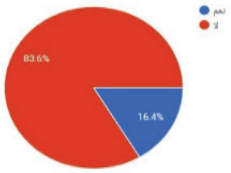




Do you think a great deal of stress comes from the unknown?
78% yes | 22% no



Do you think that the problem may be with the medical education itself?
70.4% yes | 29.6% no



Have you visited a psychiatrist?
83.6% no | 16.4% yes

24. You can talk about how you felt during your years of study at the Faculty of Human Medicine and about your personal experience: Some answers were chosen :

- Tired and exhausted psychologically and physically.
- Anxiety and tension, I think, started when I entered college and were subjected to constant pressure in exams and fear of failing in them, and it affected my psyche in general.
- I used to feel that it was where I belonged, but the feeling of powerlessness that I could not do what I aspire to. I wish I was more perfect.
- Always." There was a fear of the future and the future, perhaps because the road to medicine is long.
- All the feelings of joy, sadness, crushing failure, extraordinary success, regret and love for being in the place, and hate means everything and

25. What do you think of medical education in the Faculty of Medicine?

- We need more space for scientific education to overcome our fear and anxiety, and we need an education that strengthens our personality and teaches us to make decisions and take responsibility.
- High-level education, but it lacks the scientific aspect and often focuses on memorizing the fingerprint.
- Need development.
- Our education is good, but we lack the support of the teaching staff and we take our right to the grades.
- Average, tiring for the student to rely on himself for many things.

26. What were the most important situations you went through and were a "real" hero?

- One of my relatives passed away, and I was the one who assessed the certain signs of death, unfortunately, but nevertheless I felt the feeling of the official and the hero who gives a word and others are waiting for it, and the feeling of confidence in myself and the confidence of the environment.
- The Heimlich maneuver of one of my children saved his life.
- My arrival to the fifth year within five years.
- There were no situations in which I was the hero, but in many small occasions I felt happy and grateful for me.
- I have a chronic illness that hinders my daily performance and despite that I was passing my exams.

At the end of this project, I present to you some tips and ideas from my personal point of view based on what I have read from research and studies related to the psychological life of students of human medicine, where I emphasize the need to improve the method of medical education during the years of study at the Faculty of Human Medicine and focus on physical wellness And psychological counseling for students through the presence of psychological and health counseling programs, providing places and recreational activities for students, and dealing with students as much more than rates and exams they must pass, where students must be prepared and trained to be doctors in the future more compassionate and sympathetic to Patients and that the main goal is to provide the best possible assistance to patients in the future according to the specialty they wish to study, work and succeed in.

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Cancer Incidence in Libya 2020,
The First Comprehensive Report of the National Cancer Registry step towards enhanced Cancer care and Prevention.

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Published: 28-09-2024

Keywords:
National Cancer Registry, Population-Based Cancer Registry (PBCR), Incidence rate, CanReg5.

Objective

Implementing Libya's first Population-Based Cancer Registry (PBCR) posed unprecedented challenges. Collecting high-quality data is essential for understanding community cancer care needs and informing effective program development. The National Cancer Registry aims to assess the cancer burden accurately, enabling strategic planning and improved local patient care.

Material and Method:

The PBCR, initiated in January 2021, retrospectively collected cases from November 2020 to December 2023. Data sources included Libyan governmental cancer centers, private hospitals, histopathology laboratories, out-of-country treatment authorities, death certificates, and general hospitals. Data are entered into registry online software where data management, duplication checks, and consolidation are done, International Classification of Disease handles data for Oncology coding guidelines (ICD-2-3), then exported onto CanReg5 software for further management and analysis.

Results:

The report encompasses all cancer cases with a 2020 incidence date. Among 11,235 new abstract forms, 6,677 Libyan cancer cases were registered. 2.920 (43.7 %) and 3.757 (56.3 %) in men and women respectively, male-to-female ratio was 0.78:1. The overall median age at diagnosis was 55 years (60 years for males and 51 years for females). Crude incidence rates were 97.0 per 100,000 (83.7 for males, 110.8 for females). The age-standardized incidence rate (ASR) adjusted to the world standard population was 150.1 per 100,000 (130.2 for males, 170.2 for females), the most common diagnosis was histological examination 96.9%, clinical diagnosis 3.1%, and 0.0 % Death Certificate, Main tumors affecting the male population were colorectal cancer 20%, lung 15%, prostate 11%, lymphoma 7%, bladder 6% Whereas, in female breast cancer 41%, colorectal 14%, corpus uteri 7%, ovary 5%. Childhood cancer (0-14yr) represents 4.45% of all cancers with female to male ratio of 1.4:1, The main pediatric cancers are leukemias 42.1%, brain and CNS 15.5%, lymphomas12% &neuroblastoma 8.7%, and soft tissue tumors 6.1%.

Conclusion:

Compared to North African countries, cancer incidence among Libyan males is lowest, akin to Algeria. However, cancer incidence among females surpasses neighboring averages. Collaborative efforts by national and local authorities are crucial to maintaining registry coverage, comprehensiveness, completeness, and quality.

Awareness and Attitude of First Aid Seizures Management Among Medical Undergraduate Students

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Published: 28-09-2024

Keywords:

Awareness, First Aid, Libya, Medical Students, Seizure Management, Tobruk University

ABSTRACT

Background: Adequate knowledge of first aid for seizures is crucial for medical students, who will eventually be responsible for managing epilepsy patients. This study assessed the awareness and attitudes regarding first aid seizure management among medical undergraduate students at Tobruk University, Libya. Methods: A cross-sectional study was conducted in July 2023 using a pre-validated online questionnaire. The questionnaire collected data on sociodemographic characteristics, knowledge of seizures and epilepsy, first aid practices, and attitudes towards epilepsy among 317 medical undergraduate students. Results: While 72.9% of students correctly identified a seizure, misconceptions were prevalent regarding its causes, with some attributing seizures to supernatural causes (14.2%). Gaps were observed in knowledge of epilepsy management, including the duration of anti-epileptic drug treatment. Concerningly, 41.6% of students believed that placing something in a seizing person's mouth was appropriate first aid, highlighting a potentially harmful practice. Only 23.6% correctly identified placing the person in a semi-prone position to prevent choking. Conclusion: This study reveals significant knowledge gaps and misconceptions regarding first aid seizure management among medical students at Tobruk University. Targeted educational interventions are urgently needed to address these gaps, dispel myths, and equip future healthcare professionals with the knowledge and skills to provide optimal care for individuals with epilepsy.

INTRODUCTION

Epilepsy is a condition of chronic, recurring seizures and its most disabling aspect is unpredictability of when and where the next seizure will occur. Misconceptions about seizure first- aid measures are probably common (Goel et al., 2013). Most of the previous data focused on teachers and healthcare providers. Religious and sociocultural beliefs influence how people with epilepsy (PWE) are treated and cared for. Many communities in Africa and other developing countries, including Ethiopia, believe that epilepsy is caused by evil spirits and should be treated with herbal plants by traditional doctors and religious leaders. The combination of these sociocultural beliefs and the level of community awareness of epilepsy affect first aid practices in the management of epileptic seizures (Sintayehu Asnakew et al., 2022). Epilepsy is one of the most common neurological disorders among patients, with a high prevalence in adults and children in Libya. It can have a negative impact on a child's health, behavior, and academic performance, as well as their mental health. Numerous studies have illuminated a prevalent lack of awareness and misconceptions surrounding epilepsy, evident both in the general populace and among health-care professionals (Holmes et al., 2019). Awareness levels and attitudes toward epilepsy exhibit variations across different occupations, encompassing teachers, students, and medical professionals (Alomar et al., 2020). First-aid knowledge for seizures is crucial for university students to ensure the safety and well-being of individuals experiencing seizures. Proper first-aid can prevent further harm and reduce unnecessary emergency room visits (Kateb et al., 2023 , Alshareef et al., 2024) . The purpose of this study will be to find out the awareness of medicine students at the University of Tobruk about first aid and the measures that must be taken when a case of seizures occurs.

Materials and Methods

Study design: This university-based cross-sectional study was conducted in July 2023, utilizing an online-based questionnaire to assess the awareness and attitude of first aid seizure management among medical undergraduate students at Tobruk University, Libya. The questionnaire used in this study was adapted from a previous validated study by (Tiamkao et al. 2007). It was distributed among medical students in their clinical and preclinical years, as well as interns in the Faculty of Medicine at Tobruk University. Instrument: A pre-validated online questionnaire was employed to collect data for this study. The questionnaire, originally developed and validated by (Tiamkao et al. 2007), assesses knowledge, attitudes, and practices related to first aid for seizures. The questionnaire was adapted for the current study context and translated into English to ensure clarity for the participants. The questionnaire comprised four sections:

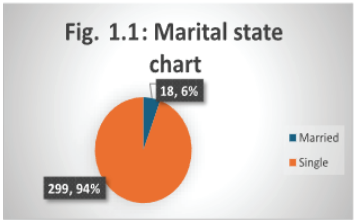
Sociodemographic Information: This section gathered data on participants' age, gender, marital status, year of enrolment in the medical program, and residence location (urban/rural). 2.Knowledge of Seizures and Epilepsy: This section used multiple-choice questions to assess students' understanding of seizures, their causes, types, curability, and the duration of anti-epileptic drug treatment. 3.First Aid for Seizures: This section employed scenariobased questions to evaluate students' knowledge of appropriate first aid measures for seizures, including actions to take and common misconceptions. 4.Attitudes towards Epilepsy: This section used Likert-scale items to assess students' perceptions of the social and personal consequences of epilepsy, as well as their perceived confidence in providing first aid for seizures.

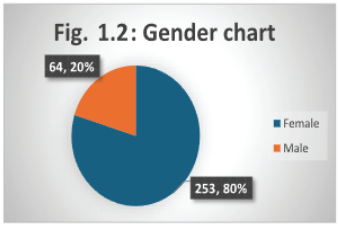
The questionnaire was hosted on Google Forms, an online platform that facilitates easy dissemination and data collection. The link to the questionnaire was distributed to potential participants via various channels, including student email lists and relevant social media groups. To ensure anonymity and confidentiality, no personal identifying information was collected, and data were stored securely within the Google Forms platform. Sample Size Estimation: The estimation of the sample size was carried out utilizing the epitools sample size calculator. The sample size was determined using the single population proportion formula, with the assumption that 50% of students are aware of first aid measures for epilepsy. The parameters set for this computation included a 95% confidence level and a margin of error of 5%. Initially, the sample size was calculated to be 292. In consideration of a 5% non-response rate, the final sample size was pragmatically adjusted to 307 participants. Statistical Analysis: Data entry and analysis were performed using SPSS for Windows, version 27.0. The data analysis included both descriptive and inferential statistics. For normally distributed data, the mean and standard deviation were calculated, whereas the median and quartile range were used for non- normally distributed data. The chi-square test of independence was employed to analyze the data, with a significance level set at a P-value below 0.05.

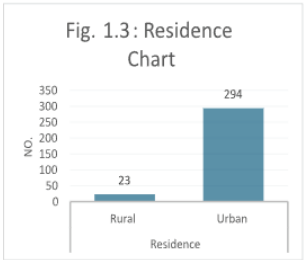
Ethical Considerations: Ethical approval for this study was obtained from the Research Ethics Committee of the University of Tobruk, with a reference number NBC:009. H.23.4. All participants were informed about the purpose of the study and provided their consent before participating. The confidentiality and anonymity of the participants were maintained throughout the research process.

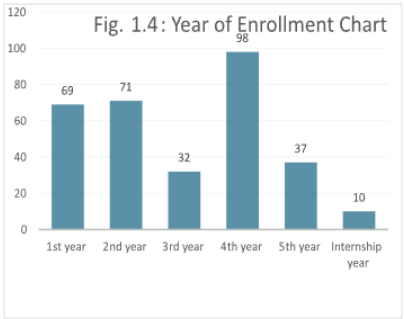
Results: Demographic Characteristics

A total of 317 medical undergraduate students participated in the study. Most of the participants were female (79.8%), single (94.3%), and resided in urban areas (92.7%). The median age of the participants was 22 years (1st-3rd quartile: 20-24). Students from all six years of the medical program participated, with the highest representation from the 4th year (30.9%), followed by the 1st year (21.8%) and 2nd year (22.4%). demographic and lifestyle characteristics the study participants are presented in Figures1-4.









Knowledge of Seizures and Epilepsy

- Definition of a Seizure: Most students (n = 231, 72.9%) correctly identified a seizure as an abnormal electrical discharge in the brain. However, misconceptions were also prevalent, with some students associating seizures with abnormal movements (12.9%), demonic possession (8.8%), or divine punishment (5.4%).
- Causes of Epilepsy: The most identified causes of epilepsy were head injury (28.7%), genetic disease (25.2%), and brain tumor (17.0%). Notably, a proportion of students held beliefs in supernatural causes, such as an evil spirit (6.3%) or divine punishment (3.8%).
- Types of Seizures: Less than half of the students (n=110, 34.7%) correctly identified the tonic-clonic seizure type (characterized by rigidity followed by jerking). Other seizure types, including complex partial (24.9%), simple partial (19.9%), absence (8.2%), and atonic (12.3%), were recognized by smaller proportions of students.
- Curability of Epilepsy: Uncertainty regarding the curability of epilepsy was evident, with 46.7% of students believing it "maybe" curable. While 34.4% recognized that epilepsy can be cured, a significant proportion (18.9%) believed it to be incurable.
- Duration of Anti-Epileptic Drug Treatment: A slight majority of students (51.1%) correctly understood that anti-epileptic drugs often need to be taken for life. However, a substantial proportion held incorrect beliefs, such as taking them for 2-5 years (27.1%), 3- 6 months (7.3%), only during an episode (9.5%), or only on the full moon (5.0%).

Attitudes and Practices Related to Epilepsy

- Consequences of Epilepsy: The most widely perceived consequence of epilepsy was the restriction from driving a motor vehicle (48.2%). Other misconceptions included the inability to marry (3.5%), get pregnant (4.4%), breast-feed (2.8%), or engage in sexual intercourse (6.6%).
- First Aid for Seizures: A concerning finding was the high proportion of students (41.6%) who believed that placing something in the mouth of a seizing person to prevent tongue biting was appropriate. This practice is harmful and can obstruct the airway. Only 23.6% correctly identified placing the person in a semi-prone position to prevent choking as an appropriate first aid step.

Other Findings:

Smoking Habits: Most students (94.0%) reported being non-smokers.

- Academic Performance: The distribution of students' cumulative academic scores Represented as the majority falling into the "Good" (41.3%) and "Very Good" (36.0%) categories. Awareness and Attitude Reponses are presented in (Table 1)

What do you think a seizure is	an abnormal electrical discharge in the brain	231	72.9%
	an abnormal movement	41	12.9%
	demonic possession	28	8.8%
	divine punishment	17	5.4%
What do you think causes epilepsy	a head injury	91	28.7%
	alcohol withdrawal or heavy drinking	4	1.3%
	an evil spirit	20	6.3%
	brain tumor	54	17.0%
	divine punishment for reneging on a vow	12	3.8%
	eating pork	4	1.3%
	genetic disease	80	25.2%
	high fever	28	8.8%
	sleep deprivation	7	2.2%
	Stroke	17	5.4%
What are the types of seizures	loss of muscle strength and tone: the person collapses (atonic seizure)	39	12.3%
	lost awareness and physically disabled, repetitive involuntary movements (complex partial seizure) .	79	24.9%
	rigid then jerking (tonic-clonic seizure)	110	34.7%
	staring spell, suddenly absent, loss of awareness (absence seizure)	26	8.2%
	unusual sensation or abnormal jerking with preserved awareness (simple partial seizure) .	63	19.9%
Do you think epilepsy can be cured	Maybe	148	46.7%
	No	60	18.9%
	Yes	109	34.4%
	2-5 Years	86	27.1%
	For 3-6 Months	23	7.3%
How long should anti-epileptic drugs be taken	for life	162	51.1%
	only during an episode	30	9.5%
	only on the full moon	16	5.0%

What are the consequences of epilepsy	abruptly stop antiepileptic drugs during pregnancy	29	9.1%
	cannot get married	11	3.5%
	cannot get pregnant	14	4.4%
	must quit work	18	5.7%
	no sexual intercourse	21	6.6%
	not able to lactate	9	2.8%
	should not allowed to drive a motor vehicle	153	48.2%
	should not drink alcohol beverages	19	6.0%
	should not eat pork	6	1.9%
	should not work with machinery	37	11.7%
What should be done during a seizure	give an antiepileptic drug during the episode	49	15.5%
	place something in the mouth to prevent biting the tongue	132	41.6%
	place the person in a semi-prone position to prevent choking	75	23.6%
	prevent injury during the episode	38	12.0%
	restrain the person and perform chest compressions (CPR)	23	7.3%
Smoking	No	298	94.0%
	Yes	19	6.0%
Cumulative academic score	Excellent	55	17.4%
	Good	131	41.3%
	poor / Pass	17	5.4%
	Very Good	114	36.0%

Discussion

The results indicate that while most students (72.9%) correctly identified a seizure as an abnormal electrical discharge in the brain, a notable proportion harbored misconception, such as associating seizures with abnormal movements (12.9%), It was lesser than observed among students in Thailand (91.8%) (Tiamkao et al., 2007). Around (25.2%) of students who thought epilepsy is a hereditary disease was lower than for Kerala (34%) (Pandian et al, 2006), Canada (45%) (Young et al., 2002) and Malaysia (67%) (Ab Rahman, 2005) (Tiamkao et al., 2007). But others believed it was due to demonic reason (8.8%) or divine punishment (5.4%). Similarly, Ismail et al reported that Muslims living in the UK believe that epilepsy is demonic (Ismail et al., 2005).These misconceptions align with findings from similar studies in other regions, suggesting cultural and educational influences on medical students' understanding of epilepsy (Suryani, G., et al., 2021), and could be a cause of large treatment gap since patients will look for faith-healers despite the availability of qualified personnel (Scott, 2001) Regarding the causes of epilepsy, the most commonly identified were head injury (28.7%), genetic disease (25.2%), and brain tumor (17.0%). However, a concerning number of students attributed epilepsy to supernatural causes, such as evil spirits (6.3%) or divine punishment for reneging on a vow (3.8%), also A significant proportion of respondents in other studies harbored supernatural associations as predisposing factors. (Senanayake & Abeykoon, 1984). This highlights the persistence of traditional beliefs even among medical students, which can impact clinical practice and patient care (Gugssa, S.A et al., 2020). The recognition of different seizure types was limited, with less than half of the students (34.4%) correctly identifying tonic-clonic seizures, followed by 24.9% who thought they were complex partial seizures, and 8.2% thought absence seizures were the least common. In comparison to a study conducted in Thailand, general tonic-clonic seizures had the highest percentage of all types, with complex partial seizures at 11.8% and absence seizures at 33.6%. (Tiamkao et al., 2007). This gap in knowledge can lead to misdiagnosis and inappropriate management of patients with epilepsy. In terms of epilepsy management, 34.4% of medical students believed it could be cured, which was lower than Rahman's claim of 46.3% (Ab Rahman, 2005). Meanwhile, 46.7% believed that epilepsy could be treated. According to the data presented, 18.9% of students have misconceptions about the prognosis of epilepsy. Some respondents had inaccurate knowledge about the effects of epilepsy, including stopping AEDs during pregnancy 9.1%, believing mothers would not be able to breastfeed 2.8%, and avoiding sexual intercourse 6.6%. Most respondents 47.9% were aware that epileptics should not be allowed to drive. In addition, 11.7% were aware that individuals with epilepsy should avoid working with machines. this finding emphasizes the need for comprehensive education on the chronic nature of epilepsy and reflect the need for clear and accurate information about the prognosis and management of epilepsy in medical curricula. One of the most concerning findings was the high proportion of students (41.6%) who believed that placing something in the mouth of a seizing person to prevent tongue biting was appropriate. This practice is not only ineffective but can also be dangerous, potentially causing airway obstruction. Only 23.6% correctly identified placing the person in a semiprone position to prevent choking as appropriate first aid. The present findings are consistent with studies by (Kankirawatana, 1999), (Dantas et al., 2001), (Fong & Hung, 2002). According to Senanayake et al, 64% of respondents who had first-aid experience with seizures utilized potentially dangerous procedures, like sticking a piece of wood in their mouth. During a seizure (Senanayake & Abeykoon, 1984). This indicates a critical need for comprehensive education and improved training in first aid for seizures among medical students (Shihata et al., 2021). Interestingly, most students (94.0%) reported being non-smokers, which may reflect a generally health-conscious population. Additionally, the distribution of students' cumulative academic scores indicated a relatively high-achieving sample, with the majority falling into the "Good" (41.3%) and "Very Good" (36.0%) categories. This suggests that the observed knowledge gaps are not due to a lack of academic capability but rather inadequate education on epilepsy and seizure management.

Limitations & Future Directions

This study was limited to a single university in Libya and may not be generalizable to other contexts. Future research should explore these issues across multiple institutions and incorporate qualitative methods to gain deeper insights into students' beliefs and attitudes.

Implications for Education & Practice

The findings underscore the crucial need to strengthen first aid seizure management education within medical curricula. Integrating interactive teaching methods, such as simulated seizure scenarios and case-based learning, could enhance knowledge retention and promote the adoption of evidencebased practices (Tiamkao, et al., 2007). Moreover, incorporating epilepsy awareness campaigns within universities and the wider community can help dispel myths and reduce stigma (Young, et al., 2002).

Conclusion

This study reveals significant gaps in knowledge and misconceptions about first aid seizure management among medical undergraduate students at Tobruk University. While students demonstrated a basic understanding of seizures, there is a clear need for targeted educational interventions to address misconceptions, improve knowledge of seizure types and first aid procedures, and dispel myths surrounding epilepsy and its management. Enhancing the curriculum to include comprehensive and accurate information on epilepsy and seizure management is essential to prepare future healthcare professionals for effective patient care.

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Prevalence of Helicobacter Pylori Infection in Adult Patients with Dyspepsia in Gastrointestinal and Hepatology Clinic in Tobruk medical centre, Tobruk, Libya

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Helicobacter pylori, Dyspepsia, Prevalence, Endoscopy, Gastric Biopsy, Libya.

ABSTRACT

Background: Helicobacter pylori (H. pylori) infection is a significant public health concern globally, particularly in developing countries like Libya, where its prevalence remains high. This infection is strongly associated with various gastrointestinal diseases, including dyspepsia, peptic ulcers, and gastric cancer. This study aimed to determine the prevalence of H. pylori infection among adult patients presenting with dyspepsia at the Gastrointestinal and Hepatology Clinic in Tobruk medical centre, Tobruk, Libya.

Methods

A cross-sectional study was conducted at the Tobruk Medical Centre from January to December 2023. A total of 205 adult patients (≥18 years old) presenting with dyspepsia were enrolled using a systematic sampling method. Patients with recent antibiotic use for H. pylori, prior gastric surgery, or severe comorbidities were excluded. H. pylori infection was diagnosed using histopathological examination of gastric biopsies obtained during oesophagogastroduodenoscopy. Data on patient demographics and clinical presentation were also collected.

Results

[Under processing - This section will include the key findings of the study, such as the overall prevalence of H. pylori infection in the study population and its association with demographic factors like age and gender].

Discussion

[Under processing - This section will discuss the findings in the context of existing literature on H. pylori prevalence in Libya and other similar settings. The implications of the findings for clinical practice and public health interventions will be explored].

Conclusion:

[Under processing - This section will summarize the main findings and their significance. It will also highlight the limitations of the study and suggest potential avenues for future research].

Introduction :

Dyspepsia, commonly referred to as indigestion, encompasses a range of gastrointestinal symptoms that significantly impact patients' quality of life. These symptoms often include epigastric pain, bloating, and nausea, which can be both distressing and debilitating (Talley & Vakil, 2005). One of the most frequently implicated pathogens in dyspeptic patients is Helicobacter pylori (H. pylori), a gram-negative bacterium that colonizes the gastric mucosa (Suerbaum & Michetti, 2002). The association between H. pylori infection and various gastrointestinal diseases, including peptic ulcer disease, gastric cancer, and mucosa-associated lymphoid tissue lymphoma, underscores the importance of understanding its prevalence in different populations (Wroblewski, Peek, & Wilson, 2010).

Libya, like many other developing countries, faces a substantial burden of H. pylori infection, which is often exacerbated by socio-economic factors such as overcrowding, inadequate sanitation, and limited access to healthcare (Al-Moayed et al., 2018). Despite this, there is a paucity of data regarding the prevalence of H. pylori among specific patient populations within the country. This study aims to address this gap by investigating the prevalence of H. pylori infection in adult patients presenting with dyspepsia at the Gastrointestinal and Hepatology Clinic of Tobruk University in Tobruk, Libya .

Understanding the prevalence and characteristics of H. pylori infection in Libyais crucial for several reasons. Firstly, it can guide clinicians in the diagnosis and management of dyspeptic symptoms, potentially leading to more targeted and effective treatment strategies. Secondly, it can inform public health initiatives aimed at reducing the incidence and transmission of H. pylori, thereby mitigating its associated complications. Lastly, it contributes to the global epidemiological data on H. pylori, facilitating comparative studies and international health policy development

We utilized several diagnostic investigations to identify H. pylori infection among the participants. The primary methods used included the urea breath test (UBT), stool antigen test (SAT), and histopathological examination of gastric biopsies obtained via endoscopy. The UBT is a non-invasive test that measures the presence of urease activity associated with H. pylori, providing high sensitivity and specificity (Malfertheiner et al., 2017). The SAT, another noninvasive method, detects H. pylori antigens in fecal samples and is considered reliable for initial diagnosis and post-treatment monitoring (Gisbert & Pajares, 2004). In addition, histopathological examination remains a gold standard, allowing direct visualization of the bacteria and assessment of gastric mucosal status (Chey et al., 2017). By employing these diverse diagnostic tools, the study aimed to accurately determine the prevalence of H. pylori infection among dyspeptic patients in the clinical setting of Tobruk University

the critical importance of early detection and treatment of H. pylori in preventing gastric cancer. H. pylori infection is a well-established risk factor for the development of gastric cancer, primarily due to its role in causing chronic gastritis, which can progress to atrophic gastritis, intestinal metaplasia, dysplasia, and ultimately carcinoma (Wroblewski, Peek, & Wilson, 2010). Early identification and eradication of H. pylori can significantly reduce the incidence of gastric cancer by interrupting this progression (Sugano et al., 2015). Moreover, studies have shown that H. pylori eradication therapy not only prevents the development of gastric cancer in at-risk populations but also may reduce the recurrence of pre-cancerous lesions (Fuccio et al., 2009). Therefore, integrating routine screening and treatment strategies for H. pylori in clinical settings, such as the Gastrointestinal and Hepatology Clinic in Tobruk University, is essential for mitigating the long-term oncogenic potential of this infection and improving patient outcomes.

Objective :
The aim of this study is to determine the prevalence of Helicobacter pylori infection among adult patients presenting with dyspepsia at the Gastrointestinal and Hepatology Clinic in Tobruk medical centre, Tobruk, Libya.

Methodology:
This cross-sectional study was conducted to determine the prevalence of Helicobacter pylori infection among adult patients presenting with dyspepsia at the Gastrointestinal and Hepatology Clinic in Tobruk medical centre, Tobruk, Libya. The study was carried out at the Tobruk Medical Centre over a one-year period, from January to December 2023.
Ethical approval for the study was obtained from the Research Ethical Committee of Tobruk University. Informed consent was obtained from all participants prior to their inclusion in the study, ensuring adherence to ethical standards and protection of participants' rights.
The study population consisted of adult patients aged 18 years and above who presented with symptoms of dyspepsia. A total of 205 patients were recruited for the study, of which 100 were male and 105 were female. Participants were selected using a systematic sampling method to ensure a representative sample.

Inclusion and Exclusion Criteria:
Inclusion Criteria:
-Adults aged 18 years and above .
-Patients presenting with symptoms of dyspepsia.
-Patients who provided informed consent .
Exclusion Criteria:
-Patients who had received antibiotic treatment for H. pylori in the past six months .
-Patients with a history of gastric surgery .
-Patients with severe comorbid conditions that might interfere with the study .

Diagnostic Procedure :
The primary diagnostic method for detecting H. pylori infection was the histopathological examination of gastric biopsies obtained via oesophagogastroduodenoscopy (OGD). During the endoscopy, multiple biopsy samples were taken from the antrum and corpus of the stomach.
The biopsy specimens were then processed and stained using hematoxylin and eosin (H&E) and Giemsa stains to identify the presence of H. pylori.
Data were collected on patient demographics, clinical presentation, and biopsy results. The prevalence of H. pylori infection was calculated as the proportion of patients with positive biopsy results among the total number of patients included in the study. Statistical analysis was performed using SPSS software version 25.0. Descriptive statistics, including means, standard deviations, and percentages, were used to summarize the data. Chi-square tests were performed to assess the association between H. pylori infection and demographic variables, with a p-value of <0.05 considered statistically significant. .

Results:
[Under processing - This section will include the key findings of the study, such as the overall prevalence of H. pylori infection in the study population and its association with demographic factors like age and gender].

Discussion:

[Under processing - This section will discuss the findings in the context of existing literature on H. pylori prevalence in Libya and other similar settings. The implications of the findings for clinical practice and public health interventions will be explored].

Conclusion:

[Under processing - This section will summarize the main findings and their significance. It will also highlight the limitations of the study and suggest potential avenues for future research].

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Parents awareness toward antibiotics use in upper respiratory tract infection in children in Western Libya

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ABSTRACT

Background: Upper respiratory tract infection (URTIs) is one of the most common acute illnesses in children. Antibiotics still continue to be given although most of these infections are of viral origin. This inappropriate practice contributes or may cause antibiotic resistance. This issue may be more common in low- and middle-income countries. This study aims to evaluate the knowledge and attitudes of /carers of children with upper respiratory tract infections regarding antibiotic use and their antibiotic administration practices in western part of Libya..

Methods

This is a cross-sectional survey study. It was carried out between March and June 2024 for parents/ carers aged > 17 years of age with a child under 18 years' old who came to the general pediatrics clinics of Zawia Medical Center and Sabratha Teaching Hospital.

Results

Four hundred forty-three parents/carers responded to the questionnaire. The majority of the responders (77.4%) chose physicians as the main source of information about antibiotic use. Only forty percent of the participants agreed that most URTIs are viral in origin and self-limiting illness that does not need antibiotics. However, 54.4% of participants believed that antibiotics should not be given to all children who have a fever. Nearly seventy percent of the responders were aware that inappropriate use of antibiotics reduces antibiotic efficacy and will lead to bacterial resistance. Fever was the dominant symptom among others of URTI, that would make (59.4%) carers to visit physicians. Parents who never asked pediatricians to prescribe antibiotics for their children were (36.3%).

Conclusion:

According to the results of the current study, parents'/carers' have lack of knowledge about antibiotics in western Libya, though generally it shows, to some extent, proper attitude and practices. It is important to inform parents, pediatricians and pharmacists about the use of antibiotics, and to be more careful about the prescribing of antibiotics, and if necessary, penalties should be imposed by the government in order to prevent unnecessary antibiotic prescriptions.

Chromatographic Detection & Determination of Cyproheptadine & Dexamethasone as Adulterants in Weight Gain Supplements

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Adulteration, Cyproheptadine, Dexamethasone, HPLC, Weight gain

ABSTRACT

Background:
Globally, people are starting to favor herbal medicines and dietary supplements as workable substitutes for prescription drugs. Aims: To identify and measure instances of adulteration in herbal medicines intended for weight gain that are marketed as natural herbal medicines or supplements in the Iraqi market, highlighting the potential harm to consumers caused by the presence of cyproheptadine and dexamethasone..

Method:
Selected herbal medications and dietary supplements that are claimed to be natural and used for weight gain in a **community pharmacy in Iraq, were analyzed qualitatively and quantitatively using HPLC.**

Results:
Out of the nine formulations analyzed, cyproheptadine was found in 7 of them, with a dose range of 2.65 to 8.6 mg/dosage unit. Dexamethasone was found at dosages ranging from 6.2 to 18.75 mg/dosage unit in all formulations.

Conclusion :
A significant number of herbal medicines and dietary supplements that were marketed under the scam of being natural were found to have high concentrations of
pharmaceutical chemicals, which may have detrimental effects. According to the study, cyproheptadine and dexamethasone were added to a sizable number of herbal medicines sold for weight gain in Iraq, perhaps endangering the health of the patients

INTRODUCTION.

People are continuously trying to have the ideal body shape to look healthier and more attractive. It is hard to define an ideal body shape since it is related to many intertwined factors including social, psychological, and physiological factors. Moreover, measurements of ideal body shape were also developed including the body mass index and anthropometric measurements. Studies found that subjects' weight is the most important determinant of the ideal body shape (1-3). Whilst subjects with obesity were found to complain about their overweight, lean subjects were also less satisfied with their body shapes. Studies in Westernized countries found a tendency among young healthy subjects (17 - 32 years) to gain more weight in an attempt to have smarter bodies. Furthermore, athletes and bodybuilders are among the subjects who seek to increase their muscles and body mass. These studies also found that the methods used to increase weight involved the increased consumption of calories, dietary supplements, and the use of herbal medicines (4-8).

Herbal medicines have been utilized since ancient times for a variety of reasons, including maintaining health improving sexual performance, bodybuilding, improving sports performance, and treating obesity (9-14). The number of side effects, pharmacological interactions, and fatalities related to the use of herbal medicines are rising along with their increased use globally. During the last decades, the reports of adverse reactions and fatalities have increased substantially. Worries have been raised over their efficacy, purity, and potential adulteration because of a lack of regulations in many countries (15,16). The growing demand for herbal medications makes the issue of adulteration of herbal medicines more difficult to solve. About 10% of herbal medicines sold at local pharmacies and 50% of the products purchased online were discovered to be adulterated, respectively (17-19). These adulterated products were claimed to be "all-natural" however, they were found to contain unreported synthetic ingredients that enhanced their efficacy.

The most commonly reported adulterants found in weight gain products are cyproheptadine (CYP) and dexamethasone (DEX) (Figure 1) since these medicines have appetite-stimulating effects and increase weight through water retention. Studies found that herbal weight gain medications contain one or more active pharmaceutical ingredients including CYP, DEX, sildenafil, tramadol, caffeine, and acetaminophen (20-22).

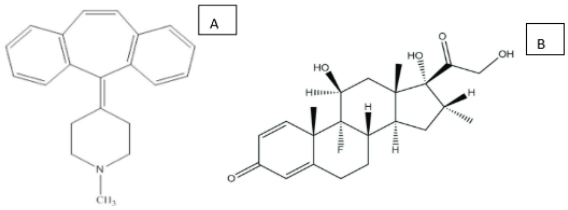

Figure 1 Chemical structures of cyproheptadine (A) and dexamethasone (B)

Analytical techniques have been developed to detect adulteration in herbal and counterfeit medicines. Chromatographic techniques are utilized in the majority of research that reported 66 adulteration of herbal medicines to determine the presence of the adulterants. The literature showed various methods that have been developed to explore the presence and estimate of the quantity of CYP and DEX in adulterated products (23). These methods include spectrophotometry (24), kinetic spectrophotometry (25), liquid chromatography (26), high-performance liquid chromatography (HPLC) (27), HPLC with mass spectrometry (HPLC/MS) (28), gas chromatography with mass spectrometry (GC-MS) (29) and electrochemical methods (30). HPLC is recognized as the most widely used method for routine analysis of declared and undeclared chemicals and pharmaceuticals (31-32). This study aims to identify and measure instances of adulteration in herbal medicines intended for weight gain that are marketed as natural in the Iraqi market, highlighting the potential harm to consumers caused by the presence of CYP and DEX. 2. Materials and Methods

2.1. Materials

CYP and DEX were used as reference substances. They were obtained as gifts from Pioneer
Company for pharmaceutical industries and the State Company for Drug Industry and Medical
Appliances, respectively. Acetonitrile of HPLC grade was obtained from EMD Millipore Corp (Taunton, MA, USA). The water was distilled and deionized using the Millipore Milli Q Ultrapure technology. Nine herbal medicines and dietary supplements that claimed to be natural and used for weight gain were bought from local pharmacies and herb shops.

2.2. Apparatus and Chromatographic Conditions

The HPLC system (Nexera LC-40B system, Shimadzu Co., Kyoto, Japan) constituted of an SCL40 system controller, LC-40B solvent delivery module, SIL-40C XR autosampler, CTO-40C column oven, SPD-M40 detector with a scanning wavelength spectrum from 190 nm to 450 nm and a reversed-phase column of Eclipse Plus C 18 (Agilent Zobrax) column (150 mm × 4.6 mm) and was equilibrated with mobile phase acetonitrile: water (ACN: H2O) with different ratios for each active ingredient. Two pumps were operated in the system; the first with a degasser module and the second with a mixing chamber. The flow rate was maintained at 1 mL/minute, eluents were monitored with an ultraviolet (UV) detector at different wavelengths (280 and 254) nm for CYP and DEX respectively, and the injection volume was 10 L and a total run time of 10 minutes. The tray configuration was 96 vials with a tray cooling system.

2.3. Standard Solution Preparation

Accurately weighed 20 mg of CYP and 10 mg of DEX, working standards were transferred into a
100 mL volumetric flask and adjusted with acetonitrile: water (ACN: H2O) in a volume ratio of (85:15) for CYP and (60:40) of the same solvent mixture for DEX. After adding the solvent mixture, the prepared solutions were sonicated for 15 minutes. With the diluent, the solutions were brought to their final volume to obtain CYP and DEX stock standard solutions. Then, solutions were brought up to the final volume with the diluent to yield (CYP =0, 20, 40, 60, 80, and 100 g /mL, and DEX = 0, 10, 20, 30, 40, and 50 g/mL), the solutions were degassed and filtered through
0.22 m membrane filter.

2.4. Sample Preparation

Nine samples of herbal medicines and dietary supplements that were claimed to be natural and used for weight gain purposes and marketed in Iraqi pharmacies were selected. The contents of five tablets or capsules of each sample were pooled and the exact equivalent of the content of one tablet or capsule was weighed and transferred to a 100 ml beaker. ACN: H2O in ratios of 85:15 and 60:40 were used for dissolving the sample contents to extract CYP and DEX respectively, in which they were added to the 100 mL mark. Then, these samples were sonicated for 20 minutes and left overnight to ensure complete extraction of CYP and DEX. The samples were then filtered
(using Whatman filter paper no. 1) into 100 mL flasks. Subsequent dilutions were carried out with the same solvent mixture. Then, the samples were analyzed by HPLC to detect and measure the amount of CYP and DEX

2.5. Calibration Curve

Standard stock solutions for CYP and DEX were suitably diluted with specified diluent to obtain concentrations ranging from (0-100 g/ml) and (0-50 g/ml) for CYP and DEX respectively. The absorbance of these solutions was measured using a UV spectrophotometer. A wavelength of 280 nm was selected for CYP and 254 nm for DEX for measuring the absorbance of these agents in the standard solutions as well as in sample solutions. From the measured area under the curve against each concentration, a calibration curve was plotted.

2.6 Method of Validation of The Parameters

In the present study, the most commonly reported active pharmaceutical ingredients that were anticipated to be present in adulterated herbal medicines and dietary supplements were CYP and DEX. Therefore, the presence of these two ingredients was evaluated qualitatively and quantitatively in the selected products. The used detection method was validated in terms of accuracy, linearity, precision, sensitivity (limit of detection (LOD) and limit of quantitation (LOQ)), and specificity to obtain accurate and precise measurements in accordance with the International Council for Harmonization (ICH) guidelines (33).

2.6.1. Accuracy

The accuracy of the used methods was measured by determining the percentage of recovery. This was performed by measuring the amount of CYP and DEX contained in a known number of tablets of these medicines at three different times. The percent of recovery was calculated by the following formula:

% Of Recovery = Measured amount of the medicine/ Known amount in a tablet ×100

2.6.2. Linearity

The linearity of the HPLC method was assessed through the examination of different concentrations of standard solutions of CYP and DEX. The linearity was obtained by using six concentrations (0, 20, 40, 60, 80, and 100 g/mL) of CYP and (0, 10, 20, 30, 40, and 50 g/mL) of DEX.

2.6.3. Precision

Precision as relative standard deviation (RSD) of the analytical method estimates the ratio between the standard deviation and the mean of a sampled population (34). Both parameters were measured in intra and inter-day. RSD% can be calculated as:

148 $RSD\% = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$

2.6.4. Sensitivity

The limit of detection (LOD) and limit of quantification (LOQ) of the CYP and DEX were separately determined based on methods of the intercept and the average value of the slope. (i.e., 153 3.3 for LOD and 10 for LOQ) ratio using the following equations designated by ICH guidelines.

154 LOD = 3.3 /S, LOQ = 10 /S. Where, = the standard deviation of the response, S = slope of 155 the calibration curve. Table 2 shows LOD and LOQ for CYP and DEX.

2.6.5. Specificity

Specificity is the ability of the method to measure the analyte response in the presence of all the impurities that may arise from the analyte and other conditions. The UV detector was set to a wavelength of 280 nm for CYP and 254 nm for DEX to display optimum sensitivity. The method demonstrated excellent chromatographic specificity with no endogenous interference.

3. Results and Discussion

3.1. Validation of Parameters

Table 1 shows the results of the validation parameters. The method used showed an acceptable accuracy in which the percent of recovery is 108.50% and 106% for CYP and DEX, respectively. Good linear relationships (R =0.9913) for CYP and (R =0.991) for DEX were observed between the concentrations and corresponding area under the curves. The regression analysis was conducted for slope, intercept, and correlation coefficient values. The equations of the calibration curves obtained were (y=69.401x-224.87) and (y=117.84x-331.05) for CYP and DEX, respectively, as shown in Figure 2.

The method used also shows a high sensitivity, in which the LOD and LOQ for CYP were 0.934 g/mL and 2.832 g/mL, and for DEX were 0.949 g/mL and 2.87 g/mL (Table 1).

Table 1 The results of validation methods

Variables	Cyproheptadine	Dexamethasone
Accuracy (% recovery)	108.50%	106%
Linearity (R^2)	0.9913	0.991
Precision (%RSD)	2.75	3.38
Sensitivity (LOD and LOQ)		
LOD	0.934 µg/mL	0.949 µg/mL
LOQ	2.832 µg/mL	2.87 µg/mL

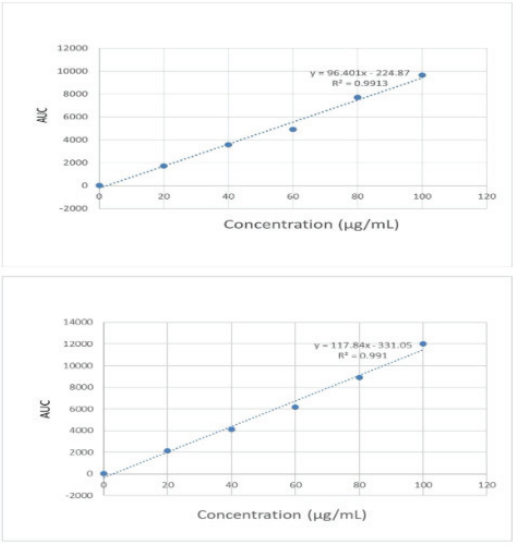

Figure 2 Calibration curves of standard cyproheptadine (A) and dexamethasone (

3.1. Chromatography Results

The presence of CYP and DEX in the adulterated weight gain products was determined by comparing them to high purity standards, using the retention time of HPLC with UV and diodearray detection. The presence of a 3-keto-4-ene in the ring of the steroids (Figure 1) causes strong absorption at 240 nm and was monitored at 254 nm. HPLC chromatograms of standard, tablets of CYP and DEX and a weight gain product are shown in Figure 3. These chromatograms indicate that these samples have many peaks, including CYP, DEX, and other compounds. Peaks with retention times of 1.63 minutes and 4.09 minutes in samples coincided with signals of standard CYP and DEX respectively. Under the same chromatographic conditions, the retention time of the nine samples was measured by HPLC and compared with the retention time of standard CYP and DEX as shown in Table 2.

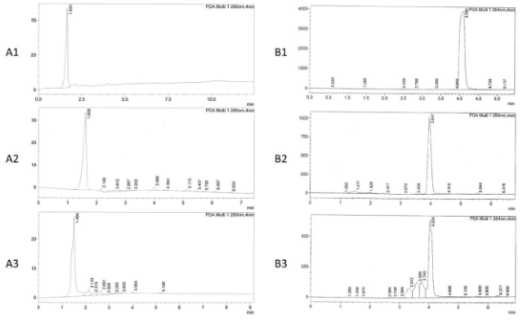

Figure 3 The HPLC chromatograms of a (A1) standard cyproheptadine, (A2) cyproheptadine tablet and (A3) for a weight gain product, (B1) standard dexamethasone, (B2) for dexamethasone tablet and (B3) for a weight gain product

Table 2 Retention times of the nine samples analyzed by HPLC and compared with the retention time of standard cyproheptadine and dexamethasone

Product name	Retention time for cyproheptadine	Retention time for dexamethasone
S1 FY	1.477	3.942
S2 FP	1.477	3.935
S3 GG	1.469	3.954
S4 HF	1.473	3.946
S5 HS	1.467	3.953
S6 JG	1.465	3.956
S7 JF	1.491	3.955
S8 JS+	1.492	3.947
S9 PA	1.494	4.024
Tablet	1.608	3.947

3.2 Quantitative investigation of cyproheptadine and dexamethasone contents in nine herbal medicines and dietary supplements

A quantitative investigation of CYP and DEX contents in nine herbal medicines and dietary supplements used for weight gain sold in Iraqi pharmacies and herb shops was conducted. The measurement results are given in (Table 3).

Table 3 Quantitative investigation of cyproheptadine and dexamethasone contents in nine herbal medicines and dietary supplements

Product Name	Dosage Form	Quantity Of cyproheptadine	Quantity Of dexamethasone
S1 FY	Tablets	0	9.50
S2 FP	Tablets	0	7.35
S3 GG	Capsules	2.65	15.4
S4 HF	Tablets	7.55	6.20
S5 HS	Tablets	3.35	13.25
S6 JG	Tablets	5.85	18.75
S7 JF+	Tablets	2.77	9.81
S8 JS+	Tablets	3.54	13.40
S9 PA	Tablets	6.50	17.50

4. Conclusions

In this study, the presence of CYP and DEX were qualitatively and quantitatively investigated in nine herbal medicines and dietary supplements used for weight gain. The method showed good linearity, recovery, and sensitivity. The LOD and LOQ were (0.934 and 2.832 g/ml) for CYP and (0.949 and 2.87 g/ml) for DEX respectively. A previous study that analyzed the same products with the use of a spectrophotometer showed a similar result with higher LOD and LOQ (1.57 and 5.23 g/mL) for CYP and (0.99 and 3.01 g/mL) for DEX respectively (22). The difference in results may arise from the application of different methodologies for sample preparations.

The results of the current study were also in line with Ahmed et al., (2024) study, in which CYP was found in seven samples and DEX was found in all samples in quantities ranging from (3.2122.50 mg) for CYP and (3.75-15.50 mg) for DEX (22). The difference in the concentrations found in the two studies is attributed to the different analytical techniques.

The finding of this study suggests that the results of the HPLC method of detection and quantification are similar to the results of simple chromatographic techniques like spectrophotometry. These techniques can be used to determine adulteration in herbal and dietary supplements that claim to be natural. Since these products pose a major threat to public health; hence action must be taken to stop their widespread marketing.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

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Ciprofloxacin ophthalmic In-situ gel based on a combination of two poloxamers

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ABSTRACT

Frequent administration of ophthalmic drops associated with poor patient compliance. This problem can be resolved by different methods. The development of ophthalmic in-situ gel is one of these methods. The aim of this study is to formulate ophthalmic in-situ gel of ciprofloxacin using a blend of two different poloxamers (P407 and P188) as gelling agents. The principle of this work based on the idea that the administered solution will be converted into a gel upon contact with the eye mucous membrane.

Methods: Seven different formulas were prepared by using different ratio of two different polymers named (P407) and (P188). Both of these polymers are temperature-dependent polymers that are going to be converted into gel upon increasing the temperature. However, each polymer has its own gelation temperature. The physical and chemical characteristics of the prepared ciprofloxacin ophthalmic in-situ gel were evaluated. These evaluations included the appearance, pH, drug content, gelling capacity, and sterility test. Furthermore, viscosity at different shear rates and different temperatures were investigated and the gelation temperature as well. Fourier transform infrared spectroscopy (FTIR) was used to study the compatibility of the polymer with the drug. In addition, the work included measuring the in vitro release of the drug.

Results: No incompatibility between poloxamers and ciprofloxacin was detected as FTIR results demonstrated. A pseudoplastic behaviour was observed as the viscosity decreased upon increasing the shear rate. Furthermore, a release study showed that there is a prolonged release from certain formula. All the prepared formulas were looked clear, having pH within acceptable range.

INTRODUCTION.

The ophthalmic administration of antibiotics as eye drops is one of the most widely used topical treatments against various eye infections. However, to preserve optimal concentration at the site of infection, the conventional ophthalmic formulations need to be administered very frequently as the rapid turnover of tears and elimination of drugs through nasolacrimal drainage leads to reduced the ocular availability of ophthalmic drops. Therefore, it is imperious to preserve optimal antibiotic concentration at the ocular surface without frequent administration to increase therapeutic efficiency and patient compliance (Abbas et al. 2022).

To overcome these limitations, in-situ gels can be a possible alternate to eye drops as they behave as freeflowing liquid before instillation into the eyes and convert into gel upon application due to change in temperature, pH or ionic concentration (Zeeshan et al. 2022). Even though several in-situ gelling systems have been established, thermosensitive in situ gels are very interesting due to their instant response to an alteration in the surrounding environment temperature (Cheng et al. 2016).
Poloxamers are non-ionic triblock copolymers, showing amphiphilic properties. Poloxamer 407 is one of the best used thermosensitive polymers, owing to its many advantages such as safety, biocompatibility, reversible sol-gel transition manners at certain polymer concentration and temperature (Gugleva et al. 2020)

Poloxamer 407 show a concentration-dependent gelling capacity. So, at low concentration, P407 solution will lose gelation ability, and at high concentration, the gelling will occur. Gelation temperature of P407 is less than room temperature (Huang et al. 2016).

Huang et al. studied a combination of Poloxamer 407 and Poloxamer 188, formulating in situ gel of betaxolol hydrochloride, with gelation temperature near to physiological one. So combination the two polymers is a good approach for modifying gelation temperature (Huang et al. 2016). Another approach to achieve optimal transition temperature and to enhanced mechanical strength of gel and/or mucoadhesion is by adding of bioadhesive polymers (e.g. cellulose derivatives like HPMC, polyacrylic acid polymers or chitosan) to the formulation (Jumelle et al. 2020).

The aim of the study was to formulate ciprofloxacin thermoresponsive in situ gel for ophthalmic use. To accomplish this objective the gelation properties of Poloxamer 407 and Poloxamer 188 in relation to polymer concentration and use of mucoadhesive hydroxypropyl methylcellulose were studied and optimal conditions were assessed. Rheological, as well in vitro release studies of formulations were carried out.

Materials and methods

Ciprofloxacin hydrochloride was supplied by the Pioneer company for the pharmaceutical industry, Pluronic®F127 (p407) (Sigma Aldrich CO. USA), Pluronic®F-68 (p188) (Transhuman technologies LTD,UK.), hydroxypropyl methylcellulose (HPMC) (HIMEDIA), sodium chloride (Akzonobel, Denmark), sodium bicarbonate (Solvay, Germany), Calcium chloride dihydrate (VIGROUS Group, China), Sodium acetate (Merck, Germany). All other chemicals were of analytical grade

Method of preparation

even formulas of ciprofloxacin HCl in-situ gel were prepared by using different combinations of P407 and P188 with different concentrations of HPMC (table 1).

The cold technique was used to make the poloxamer solutions (Qi et al. 2007). A quantity of acetate buffer pH 4.5 was cooled to 4 °C. Then, while stirring, P407 and P188 were gradually added to the acetate buffer. After that, the P188 and P407 solution was refrigerated overnight to allow the polymers to completely dissolve. HPMC, a mucoadhesive agent, was dissolved in hot acetate buffer, cooled to 4 °C, and added to polymer solutions as needed. The sodium chloride and benzalkonium chloride were added after the ciprofloxacin HCl had been dissolved in the acetate buffer. Later, the drug solution and polymer solution were combined. The various formulations were then autoclaved for 20 minutes at 121 °C and 15 psi to sterilize them.

Table 1: Different formulas of ophthalmic in-situ gels of ciprofloxacin Hcl with their compositions

Formula	Ciprofloxacin Hcl percentage	P407 percentage	P188 percentage	HPMC percentage	Benzalkonium chloride percentage	Sodium chloride Equivalent to
F1	0.3	17.5	0.0	0.0	0.02	0.9 %
F2	0.3	17.5	17.5	0.0	0.02	0.9 %
F3	0.3	17.5	5.83	0.0	0.02	0.9 %
F4	0.3	17.5	3.5	0.0	0.02	0.9 %
F5	0.3	17.5	3.5	0.2	0.02	0.9 %
F6	0.3	17.5	3.5	0.4	0.02	0.9 %
F7	0.3	17.5	3.5	0.6	0.02	0.9 %

Evaluation

1. pH

The pH values of all formulas were measured using digital pH meter which was calibrated before use with standard buffer solutions of pH 4 and pH 7.

2. Visual appearance

All prepared formulas were assessed for clarity by visual observation against black and white backgrounds (Alkotaji, Ismail, and Alnori 2022).

3. Evaluation of gelation temperature

The gelation temperature of the formulations was assessed by using test tube inversion method (Zhang et al. 2014). 2 milliliters of formulations were closed in a test tube and placed in thermostatically controlled water bath. Temperature was gradually raised up by 0.5 C/min, starting from 20 C up to 40 C and at every temperature point the sample was allowed to equilibrate for a minute and then the test tube was reversed at 90 . The temperature at which no flow upon inversion was noticed was considered as the gelation temperature.

4. Evaluation of gelling capacity

To find the optimal formula suitable for usage as in situ gelling systems, all formulations were tested for their ability to gel. The gelling capacity was assessed by adding a drop of the solution to a vial containing 2 ml of freshly made simulated tear fluid with pH 7.4, observing the gel formation, and timing the gelation (Wadetwar, Agrawal, and Kanojiya 2020).

5. Assay of active ingredient

The ciprofloxacin Hcl content was determined by taking 0.2 ml of each formula and complete the volume with acetate buffer pH 4.5 to 100 ml. Ciprofloxacin Hcl concentration was then determinded by determining the absorbance of samples at 278 nm by using UV-Vis spectrophotometer (Al-bazzaz and Alkotaji 2018)

6. Rheometry

Rheological properties of all formulas were measured by using brookfield viscometer associated to a digital thermostatically controlled circulating water bath with spindle SC4-18. The sample was placed in double jacket small volume adaptor and viscosity was determined for each sample at different shear rates and different temperatures. The angular velocity increased gradually from 0.1 to 50 rpm, while the temperature increased from 22°C to around 36°C.

7. Bioburden testing

Utilizing fluid thioglycolate medium and soybean-casein digest media, sterility tests were conducted for aerobic/anaerobic bacteria and fungi in order to determine the presence of viable microorganisms. A sterile syringe was used to remove two milliliters of the mixture, which was then aseptically transferred to thioglycolate medium and soybean-casein digest medium. The inoculated media were incubated for 14 days at 20–25 °C for the soybean-casein digest medium and 30-35 °C for the fluid thioglycolate medium (Nair et al. 2018).

8. In vitro release study

In order to assess the release profile, a modified dissolution test was employed (Al-bazzaz and Al-kotaji 2018). For the experiment, a glass cylinder with dimensions of 2.3 x 8 cm that was open on both sides was employed. A piece of Whatman® membrane that had previously been soaked in STF for an overnight was taken and secured to one end of the cylinder using parafilm and an elastic ring. On the membrane, precisely one ml of the formula was applied. In addition, the glass cylinder was connected to the USP apparatus I, in place of the basket. After that, the cylinder was placed in 200 ml of release medium that was kept at a temperature of 37 ±0.5 °C so that the membrane barely touched it. The device shaft's speed was set to 50 rpm. At intervals of 30 m, 60m, 120m,180m,240m, 360m, 480m and 600m, aliquots were taken out and replaced with equal amounts of the dissolving media. Aliquots were filtered before being subjected to UV spectrophotometric analysis at 272 nm. The cumulative proportion of medication released was calculated and shown against time.

9. Compatibility study

The FT-IR spectra of ciprofloxacin, P407, P188 alone and their physical mixture were captured using an FTIR spectrometer. The sample was applied in an adequate quantity (2-4 mg) to create a thin film that covered the diamond window.

10. Statistical analysis

The experimental data were analyzed using Origin software (version 8.0, OriginLab), one-way Analysis of Variance (ANOVA) test was conducted and a p-value of less than 0.05 was considered as the required level of significance (n = 3).

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Results and discussion

Clarity and pH

Formulations that are opaque could cause vision blur and are not preferred by the patient. Clarity is therefore a highly desired quality in ophthalmic formulations. The in-situ gel formulations for ciprofloxacin Hcl were all transparent and clear. According to table 2, all formulations had pH values that ranged from 4.65 to 4.78. These values meet pharmacopeial specifications.

Evaluation of gelation temperature

For ease of delivery into the eye as drops, the ideal in-situ gel ocular system should be a liquid with low viscosity at room temperature (about 23 ˚C). To prolong drug release, it should, however, go through a phase transition into a gel at physiological temperature (37 ˚C) in the ocular cul-de-sac.

Table 2 shows the gelation temperature of all formulas.

The temperature of gelation is affected by the combination of two different forms of poloxamer. The temperature of gelation increased when P188 and P407 were combined. P407:P188 ratios for F4, F3, and F2 are 5:1, 3:1, and 1:1, respectively. For F2, F3, and F4, the gelation temperature increased to approximately 38, 39, and 35 ˚C, respectively, as opposed to 26 ˚C for F1, which contained P407 alone.

P188 is more hydrophilic and has a lower ratio of polypropylene oxide units to polyethylene oxide units per mole. This lower ratio (0.19) for P188 in comparison to (0.32) for P407 may be the cause of the increase in gelation temperature (Abdeltawab et al. 2022). Therefore, it might disrupt the hydration layers that surround the hydrophobic region of P407 molecules. This is explained by the fact that the relatively hydrophilic PEO blocks and water form a lot of hydrogen bonds, which raises the energy needed to break those bonds and, as a result, raises the temperature at which the sol-to-gel transition occurs. This is consistent with many of previous works (Abdeltawab et al. 2021; M.A. Fathalla et al. 2017; Zhang et al. 2014; Sawant, Dandagi, and Gadad 2016).

Asasutjarit et al. developed thermo-responsive diclofenac sodium ophthalmic in-situ gels with a variable gelation temperature by mixing P188 (8, 11, or 14%) with 20% P407. While using a 20% P407 alone has a gelation temperature of 20.8 ˚C, the combination of 20% P407 with 8% P188 raised the gelation temperature to 27.2 ˚C (Asasutjarit et al. 2011).

Table 2 Characteristics of various formulas of ocular in-situ gels of ciprofloxacin Hcl. Values represent mean ± SD. (n = 3)

Formulas	pH	clarity	Transparency	Temp. Sol/gel °C	Gelling capacity	Ciprofloxacin Hcl content %
F1	4.65±0.01	Clear	transparent	26.8±0.1	+++	97.4±0.03
F2	4.74±0.005	Clear	transparent	38.0±0.3	+	101.56±0.9
F3	4.78±0.00	Clear	transparent	39.0±0.05	+	102.66±1.1
F4	4.74±0.005	Clear	transparent	35.2±0.39	++	102.5±0.03
F5	4.69±0.005	Clear	transparent	38±0.2	+	100.06±1.52
F6	4.69±0.00	Clear	transparent	35.5±0.09	++	104.3±0.28
F7	4.70±0.00	Clear	transparent	34.9±0.1	+++	96.9±0.5

Gelling capacity

Table 2 displays the gelling capacity of all formulations. F1 displayed quick gelation and persisted in the gel state for a long time. The optimum formulation should quickly gel in the ocular cul-de-sac and the insitu gel should maintain its integrity without degrading or dissolving (Pandey et al. 2021). F1 and F7 demonstrated significant gelling capacities (i.e., quick gelation and persistence for a long time), whereas F4 and F6 shown intermediate gelling capacities (i.e. immediate gelation and remains for few hours).

Ciprofloxacin Hcl content

In accordance with the pharmacopieal assay's requirements (90-110%), all formulations' drug content ranged from 94.01 to 102.59%, as indicated in table 2.

Rheological studies

As a function of temperature and shear rate, the rheological behaviors of various in-situ gel systems were examined.

The viscosity of each formula (F1-F7) at 10 rpm and 22 °C is shown in Figure 1 .

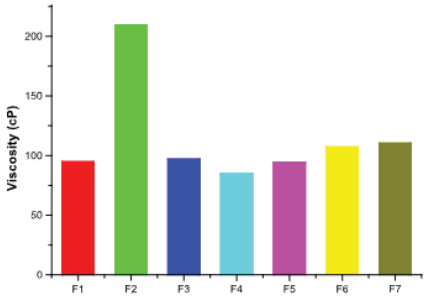

Figure 1: Viscosity of in-situ gel formulas (F1-F7) at 22 °C. (n=3, Data presented as mean)

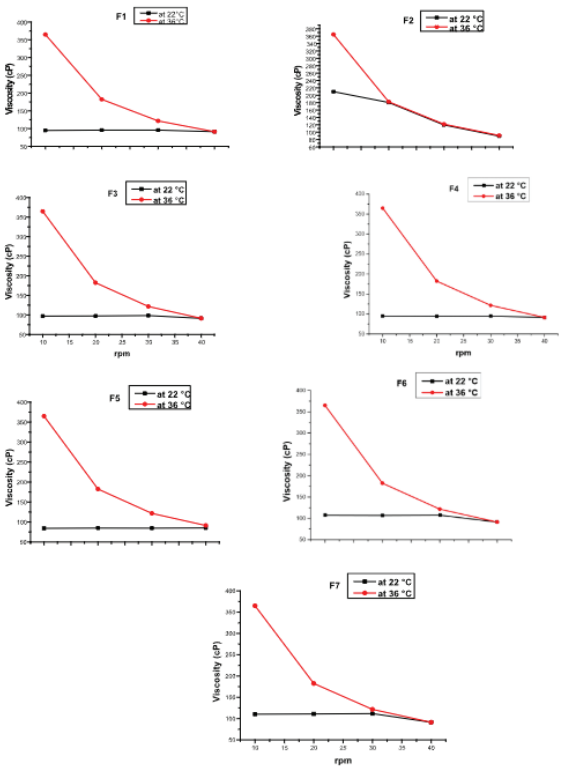

Figure 2: Viscosity versus shear rate of all formulas at 22 °C and 36 °C. (n=3, Data presented as mean)

F2, which comprises 17.5% P407 and 17.5% P188, has the highest viscosity.

Although increasing fluid viscosity lengthens the residence time, it also increases the shear forces that occur during blinking, which may discomfort and harm the ocular epithelia. It is crucial to determine whether the formula exhibits Newtonian or non-Newtonian rheological behavior. The formula that exhibits pseudoplastic shear thinning under high stress is frequently preferred because the ocular shear rate varies from 0.03 s-1 during inter-blinking periods to 4250-28,500 s-1 while blinking (Almeida et al. 2014).

Figure 2 illustrates how the formulas encoded F1, F3 to F7 display Newtonian behavior at 22°C (i.e., a nonphysiological condition) and non-Newtonian shear thinning behavior at 36°C (i.e., a physiological condition). This is in consistent with a number of studies (Dasankoppa et al. 2017; Paradkar and Parmar 2017), which manifested that increasing contact duration and reducing eye discomfort after administration can be achieved with high viscosity under low shear rates and low viscosity under high shear rates.

F2 has shown non-Newtonian behavior under physiological and non-physiological circumstances. Consequently, F2 is not suitable for instillation into the eye. The high viscosity at low shear force could be due to the, relatively, high poloxamer content in this formula.

Different concentrations (0.2, 0.4, and 0.6%) of the viscosity modifier HPMC were used. It is evident that raising the HPMC content causes the formula's viscosity to increase, as seen in
figure 1.
This could be a result of the fact that block copolymer P407 thermosensitive gels are believed to be developed by hydrogen bonding in aqueous systems, brought on by the attraction of the oxygen atom in poloxamer ether to the protons of water. By using hydroxyl-containing substances like cellulose derivative (HPMC), the number of hydrogen bonds is predicted to rise, raising the observed viscosity of the produced formulations (Mansour et al. 2008). Figure 3 demonstrated the behavior of all formulas including the profile of F5,F6 and F7, which contain the different concentrations of HPMC, 0.2,0.4 and 0.6%, respectively.

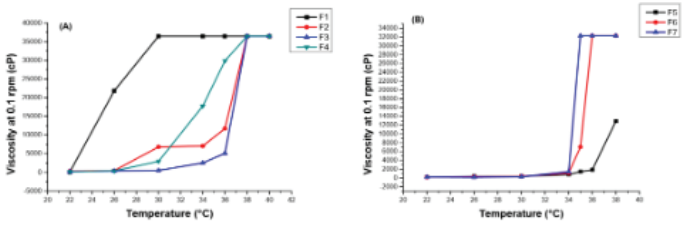

Figure 3: Viscosities at 0.1 rpm of different poloxamer formulas at different temperatures. (A) 17.5% P407, 1:1, 3:1 and 5:1 of P407:P188 for F1, F2, F3 and F4 respectively. (B) 5:1 of P407:P188 formulas with 0.2, 0.4 and 0.6 % of HPMC for F5, F6 and F7 respectively.

Bioburden test

For the duration of the product's shelf life, every ophthalmic product must be sterile in its final container. Because it provides the best assurance of sterility for the finished product, terminal sterilization is favored. When cultured for 14 days in fluid thioglycolate broth medium at 30-35 °C and in soybean-casein digest medium at 20-25 °C, the studied formula passed the test for sterility since there was no appearance of turbidity and no indication of microbial development.

In-vitro drug release study

Figure 4 compares the chosen formula (F7) release profile to the commercial eye drop solution, in which practically all of the ciprofloxacin Hcl was released instantly within 10 minutes. This finding suggests that the chosen in-situ gel formulation has a biphase release with prolonged release in-vitro as opposed to the extremely short release of the commercially available ciprofloxacin eye drop formulation

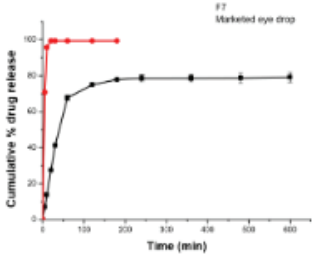

Figure 4: Drug release from the selected formula (F7) in comparison to the marketed eye drop. n=3;

Data are expressed as mean ± SD

Compatibility study

Ciprofloxacin Hcl, P407 and P188 did not exhibit any chemical interaction, according to FTIR results.

Comparing the IR charts of ciprofloxacin alone (Figure. 5, a), P407 alone (Figure. 5, b), P188 alone (Figure. 5, c) and the IR chart of the physical mixture of ciprofloxacin HCl, P407 and P188 reveals no additional peaks emerging and no discernible shift in peaks (fig. 5, d).

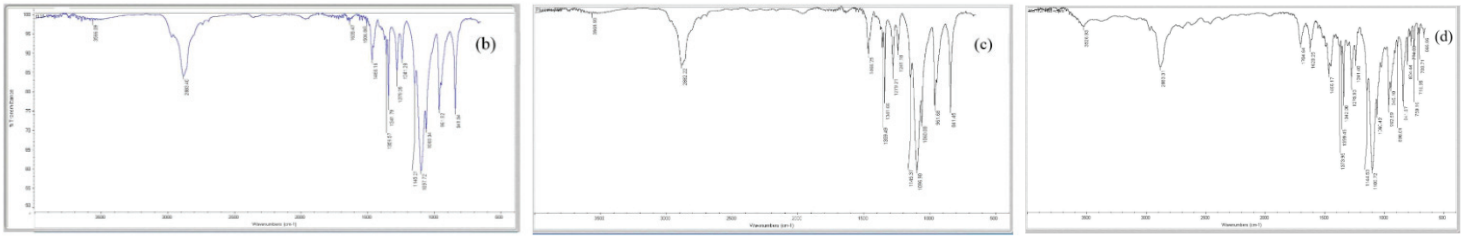

Figure 5: FTIR spectra for ciprofloxacin hydrochloride compatibility with polymers. ciprofloxacin hydrochloride (a), (P407) (b), (P188) (c) and the physical mixture of ciprofloxacin Hcl, poloxamer 407 and poloxamer 188 (d). Conclusion

Based on the results of this study, it is possible to make the conclusion that ciprofloxacin Hcl will be successfully developed as a mucoadhesive thermo-reversible system for the treatment of eye infections. In comparison to commercially available conventional eye drops, the in situ forming gel formulation of ciprofloxacin Hcl, consisting of P407/P188/HPMC (17.5/3.5/0.6%, wt/wt), demonstrated optimal mucoadhesion properties, prolonged drug release, with a decreased frequency of administration, and a predicted consequent increase in patient compliance.

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Is health literacy associated with antibiotic use, knowledge, and awareness of antimicrobial resistance among non-medical university students in Tobruk, Libya? A cross-sectional study

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Objective

Background

Antibiotic resistance is a global public health concern, especially in developing countries, where antibiotic misuse is widespread. However, studies investigating relevant factors, particularly in youth, are limited. This study examined the levels of health literacy (HL) and their association with antibiotic use, knowledge of antibiotics, and awareness of antibiotic resistance among non-medical Tobruk University students in Tobruk, Libya.

Methodology:

A web-based observational cross-sectional descriptive study was conducted using a "Google Form" to obtain responses from non-medical university students during June and July 2023.

Results:

Out of 150 participants that filled out the web-based survey, 150 gave their consent for voluntary participation and completed the questionnaire. The mean age of the study participants was 20 years. The proportion of females (54%) was slightly higher than that of males (45.3%). Half of the respondents (50%) used antibiotics to treat diseases caused by viruses, and another (72.7%) of them said that antibiotics speed up the treatment of colds and coughs. We also found that last year, only (57.3 %) of them used antibiotics without a doctor's prescription.

Conclusion:

The current study showed that the students were from different non-medical colleges at the University of Tobruk. Also, it has been observed that gaps in terms of knowledge, attitude, and awareness regarding antibiotic use among students were observed. National Center for Disease Control - Libya should target these gaps, aiming to increase awareness of proper antibiotic use and its association with drug resistance. Enforcing antibiotic regulations at a national level is paramount to targeting over-the-counter sales; hence, reducing self-medication and high rates of consumption.

Recommendations :

- Incorrect and indiscriminate use makes bacteria resistant to antibiotics. This is very dangerous and cannot be underestimated, as over time, antibiotics will lose their effectiveness and bacterial diseases will spread again.
- Random or incorrect use of antibiotics increases the cost of treatment for the patient. The antibiotic will not be effective in eliminating the disease, so the patient will resort to using many medications without any benefit.
- Random use of antibiotics results in side effects, mild or severe, the most important of which are the occurrence of cases of diarrhea and severe allergic reactions that may lead to death in some cases.
- Education must be done about the dangers of indiscriminate use of antibiotics among students in non-medical specialties, as well as the general public, through seminars and lectures, and the state must have a greater role in confronting this problem.

A Review Glass Ionomer Cements in Pediatric Dentistry

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Glass ionomer cement, pediatric dentistry, fluoride release, atraumatic restorative treatment, dental materials

ABSTRACT

Glass ionomer cements (GICs) have become essential in pediatric dentistry due to their unique properties and versatile applications. This literature review aims to explore the current knowledge of GICs in pediatric dental practice, focusing on their properties, clinical applications, performance, and recent developments. The review highlights the significance of GICs in various pediatric dental procedures, including treatments, preventive applications, and as luting agents. While GICs offer numerous advantages such as fluoride release, chemical adhesion, and biocompatibility, they also have limitations in terms of mechanical properties. Recent advancements, including resin-modified and nano-filled GICs, show promise in addressing these limitations. This review concludes that GICs remain a valuable material in pediatric dentistry, with ongoing research to enhance their properties and expand their applications.

INTRODUCTION:

Glass ionomer cements (GICs) have revolutionized pediatric dentistry since their introduction by Wilson and Kent in the early 1970s (Wilson & Kent, 1972). These materials offer a unique combination of properties that make them particularly suitable for use in children's dental care. GICs are known for their ability to chemically bond to tooth structure, fluoride release and recharge capabilities, and biocompatibility (Sidhu & Nicholson, 2016). '[1 2].
The management of dental caries in children presents unique challenges, including behavior management, limited cooperation, and the need for preventive approaches. GICs address many of these challenges, making them an indispensable tool in the pediatric dentist's armamentarium. This review aims to explore the current literature on glass ionomer cements, focusing on their properties, applications, clinical performance, and recent developments in pediatric dentistry [3-5].

The main properties of Glass Ionomer Cements are presented in the following points:

A.Chemical composition and setting reaction

GICs are composed of a powder containing fluoro aluminosilicate glass and a liquid consisting of polyacrylic acid and water. The setting reaction occurs through an acid-base reaction between these components, resulting in a cross-linked matrix (Mount, 1998). This setting process occurs in two phases: an initial set within minutes and a maturation process that continues for several months, leading to improved mechanical properties over time.

B.Adhesion mechanism

One of the most significant advantages of GICs is their ability to form a chemical bond with tooth structure. This adhesion occurs through ionic exchange between the carboxyl groups of the polyacrylic acid and calcium ions in the hydroxyapatite of enamel and dentin (Yoshida et al., 2000). This chemical bonding contributes to the material's excellent marginal seal and minimizes microleakage.

C. Fluoride release and recharge

GICs are renowned for their ability to release fluoride over an extended period, which contributes to their cariostatic effect. Additionally, they can be recharged with fluoride from external sources, such as toothpaste or fluoride gels, maintaining their protective effect (Wiegand et al., 2007). This property is particularly beneficial in high-caries-risk pediatric patients.

D. Biocompatibility

GICs exhibit excellent biocompatibility with pulpal tissues, making them suitable for use in deep cavities and as indirect pulp-capping materials (Nicholson & Czarnecka, 2008). This characteristic is especially valuable in pediatric dentistry, where pulp preservation is often a priority.

Applications in Pediatric Dentistry

A. Restorative procedures

GICs are widely used for Class I and II restorations in primary teeth. Their ease of placement and chemical adhesion make them particularly useful in young, potentially uncooperative patients. The Atraumatic Restorative Treatment (ART) technique, which utilizes hand instruments and GICs, has proven especially beneficial in managing early childhood caries and in community-based settings (Frencken, 2014).

B. Preventive dentistry. [7].

As fissure sealants, GICs offer an alternative to resin-based materials, particularly in partially erupted molars where moisture control is challenging. A systematic review by Mickenautsch and Yengopal (2011) found no difference in caries-preventive effect between GIC and resin-based sealants. GICs are also used as interim therapeutic restorations in high-risk patients, providing both restorative and preventive benefits.

C. Luting agents [8].

GICs serve as excellent luting agents for stainless steel crowns and orthodontic bands in pediatric patients. Their fluoride-releasing properties may help prevent demineralization around these appliances (Millett et al., 2016).

Clinical Performance [16, 17].

A.Longevity of restorations

Studies have shown that GIC restorations in primary teeth can have acceptable longevity, particularly for single-surface restorations. A systematic review by Mickenautsch and Yengopal (2010) found no difference in longevity between GIC and amalgam restorations in primary teeth. However, their performance in multisurface restorations may be less predictable compared to other materials like composite resins or amalgam.[9].

B.Comparison with other restorative materials

While GICs may not match the mechanical properties of composite resins or amalgam, their unique benefits often make them a preferred choice in specific clinical situations, especially in high-caries-risk patients. A randomized clinical trial by Ersin et al. (2006) found comparable success rates between GIC and composite resin restorations in primary molars after two years. [9, 10].

Factors affecting clinical success

Proper case selection, moisture control during placement, and appropriate finishing and polishing techniques significantly influence the clinical success of GIC restorations (Frankenberger et al., 2009). [9-11].

Recent Developments [11-13]

A.Resin-modified glass ionomers (RMGIs)

These materials incorporate resin components to improve mechanical properties while maintaining the advantages of conventional GICs. RMGIs have shown improved wear resistance and flexural strength compared to conventional GICs (Sidhu, 2011).

B.Nano-filled glass ionomers
The addition of nano-sized particles aims to enhance the material's strength and wear resistance. Studies have shown promising results in terms of improved mechanical properties and surface characteristics (Mitra et al., 2011).

C.Bioactive glass additions
The incorporation of bioactive glass into GICs is being explored to potentially enhance remineralization and antibacterial properties. Preliminary studies have shown promising results in terms of enhanced mechanical properties and bioactivity (Yli-Urpo et al., 2005). [11-13].

Mechanical Properties of Glass Ionomer Cements [14-18].

A.Compressive strength

The compressive strength of GICs is generally lower than that of composite resins and amalgam. However, it improves over time as the material continues to mature. Xie et al. (2000) reported that the compressive strength of conventional GICs ranges from 100 to 200 MPa after 24 hours, increasing to 200-300 MPa after one month.

B.Flexural strength

The flexural strength of GICs is also lower compared to composite resins. Conventional GICs typically exhibit flexural strengths between 20-40 MPa, while resin-modified GICs show improved values of 60-80 MPa (Pameijer, 2012).

C.Wear resistance

GICs generally have lower wear resistance compared to composite resins and amalgam. This property limits their use in high-stress areas, particularly in permanent teeth. However, in primary dentition, where restorations are required for a shorter duration, the wear resistance is often adequate (Yip et al., 2001).

Biological Interactions

A. Remineralization potential

The fluoride release from GICs contributes to their remineralization potential. Ngo et al. (2006) demonstrated that GICs could induce the formation of an ion-exchange layer at the tooth-restoration interface, promoting remineralization of the surrounding tooth structure.

B. Antibacterial properties

GICs exhibit some inherent antibacterial properties, primarily due to the release of fluoride and other ions. Vermeersch et al. (2005) found that GICs could inhibit the growth of cariogenic bacteria such as Streptococcus mutans, although the effect was less pronounced compared to materials specifically designed for antibacterial action.

Clinical Considerations in Pediatric Dentistry [19-22]

Moisture tolerance

One of the significant advantages of GICs in pediatric dentistry is their relative tolerance to moisture during placement. This property is particularly beneficial when treating young children or in situations where ideal isolation is challenging (Khoroushi & Keshani, 2013).

Thermal expansion

GICs have a coefficient of thermal expansion similar to that of tooth structure. This property reduces the risk of marginal leakage due to temperature changes in the oral cavity, contributing to the longevity of restorations (Sidhu & Nicholson, 2016).

Minimally invasive dentistry

The chemical adhesion of GICs to tooth structure allows for more conservative cavity preparations, aligning with the principles of minimally invasive dentistry. This approach is particularly valuable in pediatric dentistry, where preservation of tooth structure is crucial (Frencken et al., 2012).

Limitations and Challenges [23-28].

A.Esthetic limitations

Conventional GICs often have limited esthetic properties compared to composite resins, particularly in terms of color matching and translucency. This can be a concern in anterior restorations or when esthetics is a primary consideration (Sidhu, 2011).

B.Sensitivity to dehydration

During the initial setting phase, GICs are sensitive to dehydration, which can affect their physical properties and surface characteristics. Proper protective measures, such as the application of a surface coating, are necessary to overcome this limitation (Mount, 1999).

C. Long-term stability in acidic environments

D. While GICs have good resistance to acidic environments initially, prolonged exposure to low pH can lead to erosion of the material. This can be a concern in patients with high caries risk or those with gastroesophageal reflux disease (GERD) (Nicholson et al., 2007).

Conclusion

Glass ionomer cements continue to play a vital role in pediatric dentistry, offering unique advantages in terms of fluoride release, chemical adhesion, and ease of use. While they have limitations in mechanical properties and esthetics compared to some other restorative materials, their benefits often outweigh these drawbacks in many pediatric dental applications.

Recent developments in GIC formulations, including resin-modified and nano-filled varieties, have addressed some of the traditional limitations of these materials. However, there is still room for improvement, particularly in terms of mechanical strength and long-term stability.

The future of GICs in pediatric dentistry looks promising, with ongoing research focusing on enhancing their properties and expanding their applications. As our understanding of bioactive materials and smart technologies advances, we can anticipate the development of GICs that not only restore teeth but actively contribute to oral health maintenance in pediatric patients.

In conclusion, while glass ionomer cements are not a universal solution for all restorative needs in pediatric dentistry, they remain an invaluable tool in the management of dental caries in children. Their continued evolution and improvement will likely ensure their place in pediatric dental practice for years to come.

Future Work

- Smart materials Research is ongoing to develop "smart" GICs that can respond to changes in the oral environment. These materials may incorporate pH-sensitive components that release therapeutic agents in response to acidic challenges (Khvostenko et al., 2016).
- Biomimetic approaches Efforts are being made to develop GICs that more closely mimic the structure and properties of natural tooth tissues. This includes the incorporation of biomimetic peptides or synthetic hydroxyapatite to enhance the material's interaction with tooth structure (Sauro et al., 2018).
- 3D printing applications The potential for 3D printing of glass ionomer materials is being explored. This technology could allow for the fabrication of custom restorations with precise control over material composition and properties (Barandehfard et al., 2019).

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Fasting Ramadan and Risk stratification using the 2021 IDF-DAR risk calculator in diabetic patients at diabetic hospital Tripoli Libya 2023.

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Keywords:
IDF-DAR risk calculator, diabetes mellitus fasting Ramadan , Fasting complications Hypo -Hyperglycemia

ABSTRACT

Background : Fasting during Ramadan involves significant dangers for diabetic individuals. Risk stratification identifies people who are at high risk of problems and leads our advice against fasting. The 2021 International Diabetes Federation - Diabetes and Ramadan (IDFDAR) risk stratification approach, which evolved from earlier standards, aims to assess fasting Ramadan, and their fasting risk score . Methods :case series study conducted at the diabetic Hospital Tripoli Libya. data collected from participants after consent during post Ramadan follow up, risk score of fasting Ramadan assessed by using the IDF-DAR 2021, risk calculator, fasting Ramadan assessment. Results: A total 60 participants (76.7% type 2 diabetes). Mean age was 51.11 years (range 15 to 78 years) and 60% were females. Majority had long-standing diabetes (90% ≥10 years), insulin-treated (63.3%) and had poor glycemic control (66.7% with HbA1c ≥9.5%). Most were stratified into moderate risk 45%) and low risk (31.7%) , high risk (23.3%)categories . (58.3 %) of the fasted all 30 days of Ramadan; the mean of fasting day was 26.33±6.62 days, and the mean of breakfasting was 3.65±6.65 days. the common cause of breakfasting was (20 %) of hypoglycemia , (16.7%) their cause of breakfasting is diabetic ketoacidosis , and hyperglycemia. the mean number of episodes was 1.26 ±3.42, and 1.96±3.72 episodes of hypo- hyperglycemia during fasting Ramadan respectively. the incidence of hypoglycemia more at late noon (before Iftar) was (23.3%), while the incidence hyperglycemia early noon and late noon was (15%) . hypoglycemia reported (21.7%)during first week ,while hyperglycemia (16.7%)at third and fourth week of fasting Ramadan . Regarding education Before fasting Ramadan; (81%) of them receiving education about safe fasting Ramadan from diet education self-monitoring blood sugar, and exercise to avoid their complication , (80%) Among them received drug adjustment during Ramadan as prescribed by doctors before fasting . During fasting Ramadan, (56.7 %) visited physicians for experienced hypoglycemia and hyperglycemia. Conclusion the IDF-DAR risk calculator is a easy-touse tool that considers numerous elements to provide a patient's risk for complications during Ramadan. Diabetes patients can fasting Ramadan even with high IDFDAR risk score and poor glycemic control . with hypo- hyperglyceamia fasting complication

INTRODUCTION :

Diabetes is one of the highest prevalent of non-communicable diseases NCDs in the world and it continues increasing year by year. (1). 537 million people have diabetes in the world and 73 million people in the MENA Region; by 2045 this will rise to 135.7 million.and Libya is one of the 21 countries and territories of the IDF MENA region (1). in libya Diabetes estimates (20-79 y) by399.2 (2). Adult diabetes population were 44.251,and the prevalence 9 .3% prevalence of diabetes in adults (3) .Fasting is one of the five pillars of Islam. In this year the fasting hours is is less than 16 hours). Therefore the fasting will affect the health of the faster especially once with chronic disease. But, the kind Islam gives excuse for fasting to those once (4) . In the Muslim community, there is an intense desire to participate in fasting, even among those who are eligible for the religious exemption (5). Despite this, many diabetics fast despite the risk of complications and decompensation (6) During Ramadan, the food and activity schedules are altered. These variations vary according to the seasons, geographical and socioeconomic factors, as well as the customs of each country. Under these conditions, the fasting body attempts to adjust twice in a month: at the beginning and end of the Ramadan. (7). Therefor. Due to the metabolic nature of the disease, people with DM are at greater risk from marked changes in fluid and food intake characteristic of Ramadan fasting. Furthermore, altered sleeping patterns and circadian rhythms, and glucose-lowering medications increase the risks of complications such as hypoglycemia, hyperglycemia, dehydration, and hyperglycemic emergencies [8]. the greatest researches previously conducted to examine the impact of fasting during Ramadan on conditions like ;the EPIDIAR study, was revealed the frequency of participants fasting for 15 or more days during Ramadan was 42.8 % in type 1 DM (T1DM) and 78.7 % in T2DM [9]. and furthermore , in the CREED study, 94.2 % of participants with T2DM fasted for at least 15 days, and 63.6 % fasted on all days of Ramadan [10]. and also The recent Diabetes and Ramadan-Middle East and North Africa (DAR-MENA) T2DM study revealed that 86 % of participants fasted for 15 or more days in Ramadan [11]. All worldwide diabetes and Ramadan recommendations provide risk stratification for those with diabetes who plan to fast throughout the month of Ramadan. Recommendations have developed from the four-tier categories in the American Diabetes Association guidelines in 2005 and 2010 [12] to the three-tier traffic light system in the IDF-DAR guidelines in 2016 [13] and numerous other groups. [14, 15].Many factors were considered when developing these risk calculators, including age, type and duration of diabetes, diabetes control, incidence of hypoglycemia, presence of chronic micro- and macrovascular complications, type of treatment, appropriate use of glucose monitoring, history of acute diabetes complications within the previous year, patients' physical and cognitive functions, type of work, duration of fasting, and previous Ramadan experience.. According to these variables, the IDF-DAR Guidelines for 2021writing group developed a risk score tool based on the limited available evidence. Although not constantly supported by evidence, the risk calculation represents the best judgment of the makers of the calculator after many deliberations with the guideline group and other experts in the field.(15). These suggestions should generally be acknowledged by health care providers as their main source of instruction for safe fasting (16). To the best of our knowledge, there is no studies in our country on this subject, so there for the study is presented to find out what is the rate fasted diabetes risk score in our city, according to IDFDAR guidelines, and their fasting days , and complication of fasting .

Methods :

Materials and Methods: Study design case series study conducted at diabetic clinics at diabetic hospital during post Ramadan follow up (May 2023). the data collected from participants after taken verbal consent during post Ramadan follow-up with following inclusion criteria , such as diabetes participants who can fast month of Ramadan , duration of diabetes history more than one years, on oral antidiabetic or insulin regardless diabetes types. Pregnant women and those diagnosed with severe psychiatric illnesses or critically ill were excluded.

Data collection : the data collected from participants face to face after taken verbal consent in special questionnaire, containing the following questions; on characteristics of diabetes , diabetes control, the presence of diabetic acute , and chronic complications, associated comorbidities, control stats of diabetes before , and after Ramadan and the current fasting Ramadan history, and causes of breakfasting. and number of episodes of hypo-hyperglycemia when occurs at day times early or late no one, and at begging or end of Ramadan , changing their drugs for fasting Ramadan , and receiving fasting Ramadan education. from their doctors consultation before Ramadan. if their Doctor consultation during Ramadan . Relevant sociodemographic data were also collected. The new IDF-DAR elements for risk calculation and suggested risk scores for people with fasted diabetes during Ramadan. These elements for risk calculation include diabetes type and duration, presence of hypoglycemia (<3.9 mmol/L), level of glycemic control (in terms of HbA1c), type of diabetes treatment, self-monitoring of blood glucose (SMBG), acute complications of diabetes (diabetic ketoacidosis, hyperglycemic hyperosmolar state), macrovascular disease (cardiac-cerebral or peripheral) complications/comorbidities, renal complications/ comorbidities, pregnancy, frailty and cognitive function, physical labor, previous Ramadan experience, and fasting hours (17). The subjects' scores for individual variables were added to obtain the total risk score; the highest obtainable score was 50.5, and the lowest was zero. According to the total score, the subjects were stratified into risk categories: low risk (score 0 to 3), moderate risk (score 3.5 to 6), and high risk (score > 6). (17). The post- Ramadan follow-up included the number of days fasted, drug treatment, Self-Monitoring Blood glucose , physician visit for drug dose adjustment, hypoglycemia (<3.9 mmol/L), and hyperglycemia (>16.6 mmol/L) during Ramadan. (18) . Statistical analysis: the analyzed data by using IBM SPSS Statistics Version 21.0 software . Continuous variables are expressed as the mean ± standard deviation (SD), and categorical variables are presented as the percentage (number). graph presentation by excel .

Results :

Sociodemographic characteristics of participants

table (1) . Describes the study sociodemographic characteristics of participants. 60 subjects with DM included in this study, 60 % were females. as in figure (1). and Their mean age was 51.1 (±14.9) years. A higher number of them were from Tripoli (78.3 %) areas. half of subjects were employed (51.7%). most of them married were (83.3%) , and their education level was intermediated (40%), and then university and above level were (36.7) . (81.6%) Of subjects received Ramadan fasting education, and changed their treatment dose during fasting Ramadan were(80%). Only 11.7 % of them had pre-Ramadan HbA1c < 7.5 %

Table 1 sociodemographic characteristics of participants (N = 60).

Variables	NO(%)
Address	
Inside Tripoli	47(78.3%)
Outside Tripoli	13(21.7%)
Marital state	
Single	10 (16.6%)
Mairred	50(83.3%)
Occupation	
House wife	18 (30%)
Retired	4(6.7%)
Employee	31(51.7%)
Free employed	3(5%)
Students	4(6.7%)
Education level	
No school attending	6 (10%)
Primary	4 (6.7%)
Secondary	4 (6.7%)
Intermediated	24(40%)
University and above	22(36.7%)

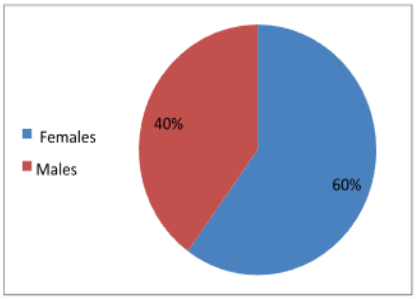

Figure 1 Gender of the study subjects

Past medical history

From the figure (2). more than half of subjects have-not associated comorbidity were 55%, hypertension the common comorbidity reported between them were 25%, hypertension with hypothyroidism , and or hyperlipidemia were 10%, 5% respectively. as fig 2

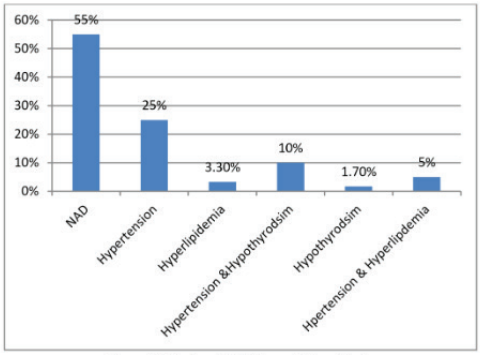

Figure (2). Past medical history of the subjects

Risk score of fasted diabetes participants

Data analysis based on calculated risk score levels showed that participants obtained moderate -risk cases their fasting under consultation were 45% , 31.70% of low-risk cases who can fast safe, on other hand, only 23.30% of high-risk cases who cannot fast were classified as such (Fig. 3).

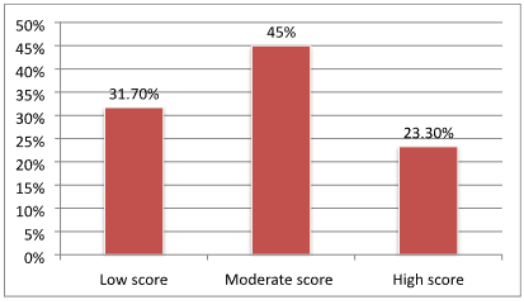

Fig. 3. Percentages of risk score of fasted diabetes according 2021 IDF-DAR

Elements of fasting risk score

Responses of 60 participants were valid for analysis, in Table 2. Overall, 76.6% of the participants were type IIDM, 90% duration of their diabetes ≥ 10 years, about hypoglycemia 5% had unawareness hypoglycemia , level of glycemic control of study participants 66.7% of them were >9 % , and their treatment daily multiple mixtard insulin injections , 40% Participants were sensitized to individualized self-monitoring blood glucose (SMBG) conducted as indicated. 88.3% had no history of diabetic ketoacidosis or non ketotic hyperosmolar coma, also 56.7% of participants had no microvascular complications, and 91.7% their estimated glomular filtration rate (eGFR) > 60 ml/min, and all participants had no frailty or loss in cognitive function. no Pregnant women , or Physical labor in study . Previous Ramadan experience. 75% of participants have no negative or positive experience.

Table (2). Elements of fasting risk score (N =60)

variable	NO(%)
Type of diabetes	
Type I DM	14(23.3%)
Type II DM	46(76.7%)
Duration of DM	13.05±7.90 years
< 10 years	6(10%)
≥10 years	54(90%)
presentence of hypoglycemia	
Hypoglycemia unawareness	3(5%)
Recent severe hypoglycemia	0(0%)
Multiple weekly hypoglycemia	0(0%)
Hypoglycemia < 1 per week	5(8.3%)
No hypoglycemia	
Level of glycemic control	
A1c > 9 %	40(66.7%)
A1c 7.5–9 %	13(21.7%)
A1c < 7.5 %	7(11.7%)
Type of treatment	
Multiple daily mixed insulin injections	19(91.7%)
Basal bolus or Insulin pump	17(28.3%)
Once daily mixed insulin	1(1.7%)
Basal insulin	9(15%)
Glibenclamide	2(3.4%)
Gliclazide MR or Glimepiride or Repaglinide	9(15%)
Other therapy (not including SU or Insulin)	3(5%)
Self-Monitoring Blood Sugar	
Indicated but not conducted	5(8.3%)
Indicated but conducted sub optimally	31(51.7%)
Conducted as indicated	24(40%)
Acute complications	
DKA/HONC in the last 3 months	0(0%)
DKA/HONC in the last 6 months	5(8.3%)
DKA/HONC in the last 12 months	2(3.3%)
No DKA or HONC	53(88.3%)
MVD complications/comorbidities	
Unstable MVD	0(0%)
Stable MVD	9((15%)
No MVD	34(56.7%)
Renal Complications/ Comorbidities	
e GFR <30 mL/min	0(0%)
e GFR 30–45 mL/min	0(0%)
e GFR 45–60 mL/min	5(8.3%)
e GFR >60 mL/min	55(91.7%)
Frailty and Cognitive function	
Impaired cognitive function or frail	0(0%)
>70 years old with no home support	0(0%)
No frailty or loss in cognitive function	60(100%)
Pregnancy	
Pregnant not within targets	0(0%)
Pregnant within targets	0(0%)
Not pregnant	0(0%)
Physical labor	
Highly intense physical labor	0(0%)
Moderately intense physical labor	0(0%)
No physical labor	0(0%)
Previous Ramadan experience	
Overall negative experience	15(25%)
No negative or positive experience	45(75%)
Fasting hours (location)	
≥16 h	0(0%)
<16 h	60(100%)

Diabetic ketoacidosis (DKA) , hyperosmolar NON ketotic coma (HONC)

Estimated glomular filtration rate (eGFR), macrovascular diabetes complication (MVD).

Fasting Ramadan practice & their complications

As a whole, 58.3 % of the participants fasted all 30 days of Ramadan; the mean of fasting day was 26.33±6.62 days, and the mean of breakfasting was 3.65±6.65 days. the common cause of breakfasting was 20 % of hypoglycemia , on other hand 16.7% their cause of breakfasting is diabetic ketoacidosis , and hyperglycemia. the mean number of episodes was 1.26 ±3.42, and 1.96±3.72 episodes of hypo- hyperglycemia during fasting Ramadan respectively. from figure (4.5). Revealed that; time trend incidences of hypohyperglycemia. the incidence of hypoglyceamia more at late noon (before Iftar) was 23.3%, while the incidence hyperglycemia early noon and late noon was 15% as in figure (4). while figure 5 demonstrate the weekly frequency of hypo-hyperglycemia during fasting Ramadan , incidences of hypoglycemia reported 21.7% during first week of fasting Ramadan, while the incidence of hyperglycemia reported 16.7% at third and fourth week of fasting Ramadan . regarding education Before fasting Ramadan; 81% of subjects receiving education about safe fasting Ramadan from diet education self-monitoring blood sugar, and exercise to avoid their complication , 80% Among them received drug adjustment during Ramadan as prescribed by doctors before fasting . During fasting Ramadan, 56.7 % of the subjects visited physicians for experienced hypoglycemia and hyperglycemia as in table (3).

Table (3).Fasting practice and complications (N=60).

variable	NO (%)
Mean of fasting days	26.33±6.62 days
Mean of breakfasting days	3.65±6.65 days
Causes of breaking fasting Ramadan	
Fasted diabetes participants	35(58.3%)
Hypoglyceamia	12(20%)
Hyperglyceamia	10(16.7%)
Hypo-Hyperglyceamia	3(5%)
Visited physician for dose adjustment of diabetic medications	
Yes	48(80%)
No	12(20%)
Receiving fasting Ramadan education	
Yes	49(81.6%)
No	11(18.3%)
Doctor consultation during Ramadan	
Yes	34(56.7%)
No	26(43.3%)

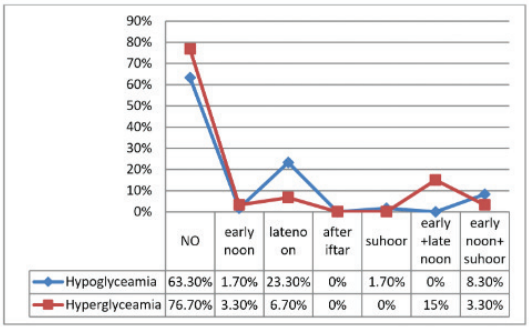

Figure (4). Time trend of Hypo-Hyperglycemia of fasting subjects

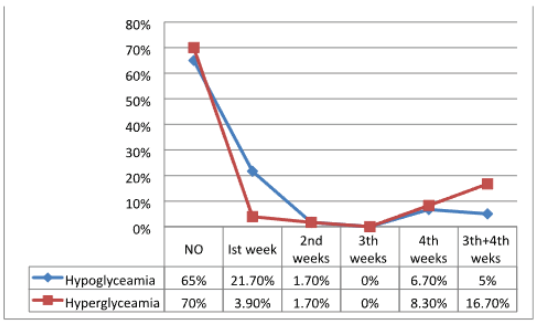

Figure (5). Weekly incidences of Hypo-Hyperglyceamia during fasting Ramadan

Discussion

Ramadan fasting entails considerable changes in lifestyle and behavior, not only abstention from eating. Addressing these lifestyle adjustments in individuals with diabetes is critical and difficult (19).This study, conducted among 60 subjects with diabetes attending diabetic clinics at diabetic hospital during post Ramadan follow up, than half (45%) of the participants who fasted had a moderate risk score, while low risk (31.7%) and high risk (23.3%) scores. The participants in the moderate risk score and high risk score groups were intended to fast despite these possible risks and doctors' advice against it; 58.3% of them fasted all 30 day of Ramadan. the Several studies fasting risk-score in diabetes patients as The CREED study, conducted globally, identified 31.5 % as high-risk, and 3.8 % as very high-risk such patients according to ADA 2005 risk stratification ([20,21). and also other study in Bangladesh identified that more than half (55.8 %) of the study subjects had moderate- (45.7 %) and high-risk (10.1 %) fasting during Ramadan.(18). Moreover , Applying the IDF-DAR 2017 risk calculator, two other studies comprising most of the patients with T2DM in Pakistan and Saudi Arabia reported that most study subjects fall into moderate- and high-risk groups.(22,23) Nearly three-fourths (73.8%) of the participants in Chiew et al.'s study, which included the majority of subjects (93.8%) with T2DM in Malaysia, fell into the moderate- (33.3%) and high-risk (40.5%) categories according to the updated IDF-DAR 2021 risk categorization (24). In fact in the Muslim community, there is an intense desire to participate in fasting, even among those who are eligible for the religious exemption (5). Despite this, many diabetics fast despite the risk of complications and decompensation (6) . And The unique nature of the study individuals and sample size that were included, the regional factors that affect Ramadan fasting, as well as the various risk stratification techniques, may all contribute to The significant discrepancies in the study results (18).However, because religious and cultural views on accepting a fasting exemption are quite vary between the different areas. Undoubtedly, this might make patients confused, which would undermine their confidence, harm their relationships with their doctors, and, most critically, threaten their safety. The fact that many patients choose to fast despite medical advice made this clear (25).the present study demonstrated more than half of study participants their glycemic state was uncontrolled pre-Ramadan were (66.7%). reported Similar uncontrolled pre-Ramadan HbA1c with different percentage , was observed in the DAR 2020 Global survey (63.9 %) and among Malaysian fasters with T2DM (57.6 %)
[24,26]. and in Bangladesh study (27) was (70.4%). uncontrolled sate of diabetes participants multifactor related to it . regarding diabetes complication the risks of complications such as hypoglycemia, hyperglycemia, dehydration, and hyperglycemic emergencies [8]. in the current study; The overall incidences of hypoglycemia (20 %) and hyperglycemia (16.7 %) were remarkably high in this study. in the same time reported very low in Bangladesh study (18), Hypoglycemia (3.5 %) and hyperglycemia (2 %); and the frequencies are even lower than in previous studies conducted in other countries [21,22,15]. All the participants of the previous studies were under special care and received structured education for Ramadan fasting and advice to adjust their lifestyle and glucose-lowering drugs during the fasting period; this may contribute to the lower occurrence of hypo and hyperglycemia between them. in current study the hypoglycemia more frequent at late noon was 23.3% and more frequent in the first week than other weeks of Ramadan month , while the hyperglycemia more frequent at early noon, and late noon was15%., and in third and fourth week of Ramadan.

However, both hyperglycemia and hypoglycemia were more frequent during the last week of fasting in pervious study reported in Libya(28) , opposite to the first two weeks as reported also in Benghazi Libya (29) . perhaps because change drugs treatment , and oral antidiabetic and change in dietary habits of patients during Ramadan leads to these complication.in current study the majority of participants received fasting Ramadan education , lifestyle , and drug adjustment before Ramadan were (80%, 81.6%) respectively . Therefor the Fasting-related hazards have been significantly decreased by raising knowledge, and implementing global and national recommendations for treating diabetes with pre-Ramadan risk assessment and therapeutic dosage adjustment using SelfMonitoring Blood Glucose [30]

In conclusion, although most participants with diabetes, can fasting Ramadan even with high risk score of fasting, hypo-hyperglycemia most common complication, and assuming their risk of developing complications from fasting, are advised against fasting during Ramadan, they ignore their risks and fast against physicians' recommendations. the overall risk was surprisingly moderate among the participants. Further large-scale study are needed for more visualization of fasting risk score in our country.

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Conflicts of interest: There are no conflicts of interest.

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The Incidence And Prognosis Of Stroke In Young Subjects Admitted To Emergency Departments

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Introduction

The incidence of stroke among young adults has increased since the 1980s, which has occurred alongside increasing prevalence of vascular risk factors and substance abuse among youth. Behavioral risk factors such as physical inactivity, excessive alcohol consumption and smoking.

Objective:

The objective of this study was to analyze the incidence and prognosis of stroke in people under 55 years of age. Materials and methods: This is a prospective study, including 453 patients whose age is less than 55 years, admitted to 22 Tunisian centers for treatment of a stroke. Patient evaluation was done on day 30 after inclusion by telephone call in order to note the rate of patients who had complete follow-up, complications and mortality occurring within one month and the modified RANKIN score.

Results:

Among the 453 patients included, a male predominance was observed. The average age of the patients included was 43.7 ± 9.3 years (41.1 ± 7.2 in women and 46.3 ± 4.9 in men). More than eighty percent of patients were diagnosed as ischemic stroke, 8.3% as intracerebral hemorrhage, and 3.9% as transient ischemic attacks. Smoking was the main risk factor linked to poor prognosis and higher mortality.

Conclusion:

The identification of risk factors encourages patients to modify their lifestyle for long-term prevention in order to improve their prognosis

Evaluation of Nurses' Knowledge Regarding the Importance of Physical Activity in the Prevention of Type 2 Diabetes

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Introduction

Nurses play an important role in the therapeutic education of patients about the significance of physical activity for the prevention of type 2 diabetes (T2D). They are key in promoting regular physical activity among individuals presenting certain risk factors for type 2 diabetes. Our study aimed to evaluate nurses' knowledge about the importance of physical activity in the prevention of T2D.

Materials and Methods:
This is a descriptive, cross-sectional study focusing on the importance of physical activity in the prevention of T2D, conducted at the Farhat Hached University Hospital, Sahloul University Hospital, and the Intermediate Center of Sousse during March and April 2022. Data collection was performed using anonymous questionnaires assessing knowledge, and the results were analyzed using SPSS 25 software.

Results:
We collected data from 100 participants, with a predominance of females (72%), resulting in a male-to-female ratio of 0.388. More than two-thirds of the study population (70%) were under 40 years old, and 81% of respondents had a Bachelor's degree or higher. Key survey results: Knowledge of the risk factors for T2D varied from 55% to 95%. Among the participants, 40% of nurses rated physical activity as important on average. According to the objective of regular physical activity in our population, 63% of nurses engaged in prevention efforts. For these nurses, moderate physical activity allows 71% of individuals to manage their weight, while 29% believe it prevents T2D. Among respondents, 50% had knowledge of the physical activity recommendations by the WHO according to age category.

Conclusion:
To prevent the onset of T2D, it is essential to ensure a balanced diet from childhood and regular physical activity, which improves overall health and significantly reduces the risk of T2D.

The Relationship Between Neonatal Jaundice and Gestation Age in Zliten Medical Center in 2022

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ABSTRACT

neonatal jaundice is one of the most common clinical problems and an abnormal condition which has yellowish
discoloration of the skin and sclera of the neonate during 24hour after birth, this is a problem in NICU. There are increase spread rate of neonatal jaundice with relation to gestation age, which can cause complication including encephalopathy. This study aims to known and evaluate the relationship between age gestation and spread rate of neonatal jaundice. this cross-sectional study conducted of 300 cases of admitted in NICU of in Zliten Medical Center during a year 2022. The information was Collected through data questionnaire to neonates then the conducting necessary analysis to check the level of bilirubin in blood in neonatal. the data analysis by SPSS version 26, result showed, the highest spread rate of neonatal jaundice was 39.7% in Gestational Age less than 37wk, and non-neonatal jaundice was 69.0% in Gestational Age more than 40wk. Through distribution for sex category, the highest spread rate of neonatal jaundice was 42.0% in female, and non-neonatal jaundice was 69.8% in male. through distribution for weight category, the highest spread rate of neonatal jaundice was 42.4% in weight less than 2.500kg, and the non-neonatal jaundice was 66.8% in weight from 2.500kg to 4kg. where this study concluded the increase in the jaundice spread rate in neonatal is one of the most spread diseases in Zliten City. So recommended conducting necessary analysis to ensure the health of the neonatal and conducting instructions for the mother about neonatal jaundice.

NTRODUCTION

The jaundice is one of the most common clinical signs in newborn infants, neonatal jaundice is an abnormal condition which has yellowish discoloration of the skin and sclera of the neonate during 24hour of life, the main risk factors to incidence neonatal jaundice which can cause complication including encephalopathy. In 2020 3.6% of all babies born in Queensland had jaundice requiring phototherapy. Early recognition and appropriate treatment are required to prevent bilirubin encephalopathy and severe neurodisability. (Naveen J, et al., 2023; The Women's, 2020; mayo clinic, 2022; Guideline, Q. C. (2022).

It is considered major of neonatal morbidity globally and presented in term infants of 60% and preterm of 80%, examination of the newborn for visual assessment of clinical jaundice should be performed in a welllit room, and visual assessment is unreliable, particularly under artificial light and after phototherapy has begun. It can also be difficult in dark-skinned infants, in whom examination of sclera, gums and pinched skin are also important. For any infant with clinical jaundice, the serum bilirubin level must be measured to allow planning of management. (H. Goli et al., 2022; Subhabrata M et al., 2017; Robabe et al., 2019).

Age gestation is important to diagnosis the neonatal jaundice during first 24 hours, the infant is born before 37weak is considered preterm and from 37weak to 40weak gestation is considered full term, and above 40weak is considered post term. Based on previous studied, the incident rate of jaundice in neonatal during the first 24 hours, with 35 weak or more of gestation age, include levels of TCP and TSB in the high-risk zone (based on the Bhutan Nomogram) before discharge. (Anastasia 2021; Robabe et al., 2019).

Always used gestational age-specific to treatment threshold graphs for babies with neonatal jaundice which is gestational age specific and gives a clear visual idea about the need for the modality of treatment at start as well as the response to treatment. (Trappes L et al., 2022; Robabe et al., 2019).

Given that jaundice is a common problem in Asian countries such as Iran, accounting for about 21% of causes of neonatal hospitalization with serious side effects including kernicterus, and given that identifying the predisposing factors can be suggested as markers for prevention of jaundice and its rapid diagnosis in order to provide better treatment care and improve outcomes, the present study aims to systematically review the maternal risk factors for neonatal jaundice. (Hassan B, 2020)
Measurement of Serum Bilirubin Levels and Body Weight Blood samples were collected by heel prick, although transcutaneous bilirubin levels were not measured, total serum bilirubin levels (mg/dL) at day 4, corresponding peak levels among Japanese neonates, were routinely measured among 10,541 out of 10,544 neonates using a modified method based on previous studies involving direct spectrophotometry of centrifuged blood samples in micro-hematocrit tubes (BL-200, Toitu, Tokyo, Japan). On the basis of bilirubin levels ≥18 mg/dL in combination with other clinical findings, phototherapy was performed. However, some neonates (3 out of 10,544) presented clinical symptoms of jaundice, such as yellow skin color, earlier than day 4; thus, these neonates underwent phototherapy before day 4. Definitions of neonatal jaundice included (1) use of phototherapy and (2) total serum bilirubin ≥15 mg/dL. (Masayoshi Zaitsua, 2018)

Materials and methods

This cross-sectional study was connected on 300 cases with neonatal jaundice and based on Gestation Age of less than 37wk to more than 40wk, Sex and weight of less than 2 kg to more 4 kg, at Zliten Medical Center, Libya, during year 2022. Data was analysis in SPSS software version 26, descriptive statistics, to determine the relationship between gestation age and incidence rate of jaundice in neonates during first 24 hours,

Results

Distribution of Data Percentage Based on Gestation Age

Represent the general average of the neonate jaundice based of gestation age category surveys from 300 cases in NICU in Zliten Medical Center. The highest percentage rate in Neonatal Jaundice was 39.7% in Gestational Age less than 37wk, while the least percentage rate in Neonatal Jaundice was 31.0% in Gestational Age more than 40 wk. The highest percentage rate in Neonatal Non-Jaundice was 69.0% in Gestational Age more than 40 wk, while the least percentage rate in Neonatal Non-Jaundice 60.3% in Gestational Age less than 37wk. Table

Table - Distribution of Data Percentage Based on Gestation Age

Gestation Age* Neonatal Jaundice Crosstabulation		
Gestation Age	Neonatal Jaundice	
	Jaundice	Non jaundice
Less than 37 week	39.7%	60.3%
From 37 week to 40 week	36.0%	64.0%
More than 40 week	31.0%	69.0%
Total	35.3%	64.7%

Distribution of Data Percentage Based on Sex Category

Represent the general average of the neonate jaundice based on Sex category surveys from 300 cases in NICU in Zliten Medical Center. the highest percentage rate in Neonatal Jaundice was 42.0% in Female, while the least percentage rate in Neonatal Jaundice was 30.2% in Male. the highest percentage rate in Neonatal Non-Jaundice was 69.8% in Male. while in Female was 58.0%. Table

Table - Distribution of Data Percentage Based on Sex Category

Sex * Neonatal Jaundice Crosstabulation		
Sex	Neonatal Jaundice	
	Jaundice	Non jaundice
Female	42.0%	58.0%
Male	30.2%	69.8%
Total	35.3%	64.7%

Distribution of Data Percentage Based on Weight Category

Represents the general average of the neonate jaundice based on weight category surveys from 300 cases in NICU in Zliten Medical Center. The highest percentage rate in Neonatal jaundice was 42.4% in weight less than 2.500kg, while the lest percentage rate in Neonatal Jaundice 33.2% in weight from 2.500kg to 4kg. The highest percentage rate in Non jaundice was 66.8% in weight from 2.500kg to 4kg, while the least percentage rate in Non jaundice was 57.6% in weight less than 2.500kg. Table

Table - Distribution of Data Percentage Based on Weight Category

Weight * Neonatal Jaundice Crosstabulation		
Weight	If have neonatal jaundice	
	Jaundice	Non jaundice
Less Than 2.500kg	42.4%	57.6%
From 2.500kg to 4kg	33.2%	66.8%
More Than 4kg	41.7%	58.3%
Total	35.3%	64.7%

Summary of Cases of Neonatal in Evaluate the Relationship Between Neonatal Jaundice and Gestation Age During First 24 Hours

The incidence rate of jaundice in neonates during first 24 hours of life Neonatal Jaundice of cases of neonates' ware 35%, and 65% was non-Jaundice for incidence rate of jaundice in neonatal during first 24 hours.

Discussion :

This study, among 300 cases of neonatal admitted in NICU in Zliten Medical Center during year 2022, the data analyzed and showed, the highest percentage rata in gestational age category in neonatal jaundice was 39.7% in gestational age less than 37wk, the highest percentage rata in non-neonatal jaundice was 69.0%in gestational age more than 40 wk. The percentage rata of gestation age category in neonatal jaundice was 35.3% and non-neonatal jaundice was 64.7%. The result is agreed with the previous study conducted in Northern Ethiopia in 2020, also previous study in Malaysia in 2020 was shown 10% with neonatal jaundice in less birth weight and 8.6% in non-neonatal jaundice.

In this study, the highest percentage rate in Sex category in neonatal jaundice was 42% in female,
and highest percentage rata in non-neonatal jaundice was 69.8% in male. The percentage rata of Sex category in neonatal jaundice was 35.3% and non-neonatal jaundice was 64.7%. The result is agreed with the previous study conducted in Japan 2018, also other study in Ethiopia in 2018

Also, in this study the highest percentage rata in weight category in neonatal jaundice was 42.4% in
weight less than 2.500kg, and the highest percentage rata in non-neonatal jaundice was 66.8% in weight from 2.500kg to 4kg. The percentage rata of weight category in neonatal jaundice was 35.3% and nonneonatal jaundice was 64.7%. The result is agreed with the previous study conducted in South Africa in 2018 shown 16.7% in neonatal jaundice and 54.2% in non-neonatal jaundice.

Conclusion :

Based on the data collected 300 a sample the neonatal conclude that the incidence rate of jaundice in neonates during first 24 hours after birth for data distribution on each testing tools; gestation age, sex, weight, spread rate of neonatal jaundice was 35% and non-neonatal jaundice was 65%.

Through distribution for gestation age category, the highest spread rate of neonatal jaundice was 39.7% in Gestational Age less than 37wk, the highest spread rate of non-neonatal jaundice was 69.0% in Gestational Age more than 40wk. Through distribution for sex category, the highest spread rate of neonatal jaundice was 42.0% in female, and the highest spread rate of non-neonatal jaundice was 69.8% in male. through distribution for weight category, the highest spread rate of neonatal jaundice was 42.4% in weight less than 2.500kg, and the highest spread rate of non-neonatal jaundice was 66.8% in weight from 2.500kg to 4kg.

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Variation of biological parameters in patients with upper digestive bleeding: prognostic value

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Introduction

Digestive bleeding is a frequent and potentially serious reason for consultation in the Emergency Department, which is associated with significant morbidity and mortality. The incidence of upper gastrointestinal hemorrhage (UGH) has been reported to be 67–103 per 100,000 adults per year with mortality rates of 2%– 8%.
Objectives of the work: Our goal is to study the impact of biological parameters in the prognosis of patients with upper digestive hemorrhage in a Tunisian population.

Methods:

This is a descriptive single-center study over a period of 3 years from September 2019. We included all patients aged 18 or over, consulting the emergency room for non-traumatic UGH. We collected demographic, clinical and biological parameters for each patient included in our study. Data analysis was carried out using SPSS version 20 software. Different statistical tests were applied (independent t test, Chi square test, cross tables) depending on the variables.

Results:

we included 143 patients. The average age of our population is 63.8±16.5 years. The majority of patients (38.8%) are aged between 60 and 74 years. A male predominance was observed. In our study, a urea level >10 and a creatinine level >150 were correlated with a poor prognosis: a urea level >10 had a mortality risk of 2.068 with a 95% CI [1.026-4.168] and increases the chance of having complications with an OR 2.049 and a 95% CI [0.988-4.249]. It was found that a lactate level greater than 2 mmol/l was predictive of intra-hospital mortality. In our study, a urea/creatinine ratio less than 75 was correlated with a poor prognosis.

Conclusion:

After comparative analysis between patients “with good progress” and those who presented complications (death, rebleeding, readmission, etc.) we were able to conclude that the level of lactate, urea and creatinine can be risk factors. in patients consulting the emergency room for UGH.

Interest of melatonin in the treatment of SARS-CoV 2 in an outpatient multicenter randomized double-blind study

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Keywords:

Counting People, Face Detection, People Detection, Viola Jones LBP, Viola Jones CART.

Introduction:

The SARS CoV-2 pandemic is one of the most serious health crises the world has experienced in more than a century. The pandemic which has weighed heavily on the global economic and health plan. The uncertainties, the fears, the new way of life have affected the majority of the world on a psychological level. Recent studies have proven the anti-inflammatory, antioxidant and sedative effect of melatonin. The main objective of this study is to study the effectiveness of melatonin in patients consulting the emergency room with signs of a syndrome flu.

Patients and methods:

We included any patient under the age of 60 consulting for an influenza-like illness. For each patient, we collected the clinical, biological and anamnestic parameters on a specific form. Treatment will be provided by medical staff to discharged patients at home. Two groups were identified: group 1 (treatment group) and Group 2 (Placebo). A telephone call will be made on D5, D10, D15 and D30 by a research associate to report any adverse effects and note the clinical progress and compliance of each person. On D30, the assessment of anxiety and depression were assessed using the HADS and Hamilton questionnaires respectively. At D90, the PCL-5 score allowed us to assess posttraumatic stress in our study population.

Results:

There was a significant difference between the treatment group and the placebo group according to the disappearance of all initial signs, present on admission, on the 5th day with a p value 0.041. In the group that received melatonin, 49.4% of patients no longer had symptoms on day 5. On the 10th day of follow-up, statistical analysis revealed a significant difference between the 2 groups with a p-value of 0.038 : 66 patients in group1 showed complete recovery and only 55 other patients recovered in the placebo group. There were no significant differences between the two groups in terms of recovery during the 15th and 30th days of follow-up. Higher frequencies of occurrence of post-traumatic stress, anxiety and depression were noted in the Placebo group compared to the group treated with melatonin. The treatment was well tolerated and no serious adverse events were reported throughout the trial.

Conclusion:

Our results showed that daily doses of melatonin significantly reduced the duration of symptoms accelerating its disappearance as well as the rates of depression, anxiety and the occurrence of post-traumatic stress in patients consulting for symptoms of COVID-19.

Readiness of Medical Libyan Establishments for the Digital Era
A Pre-requisite for Quality Assurance and Accreditation

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ABSTRACT

Introduction:
Integration of digital technologies is imperative across sectors like healthcare and education. This shift presents opportunities to enhance medical services and transform learning for future health-care professionals. This study evaluates Libyan medical institutions' readiness for the digital age, emphasizing its importance for quality assurance and accreditation.
Materials and Methods:
A quantitative survey was sent to all the medical faculties deans in Libya.
Results:
Surveys gathered responses from 47% of deans representing 17 medical faculties in Libya. Insights emerged on digital transformation dimensions. Positive aspects included an administrative commitment to digital transformation, the pedagogical shift towards student-centered learning, and teacher training support. Challenges included digital infrastructure, resource availability, budgetary constraints, and limited student access to digital tools, emphasizing the need for equitable access. Data security and privacy compliance were strong, with room for data quality improvements.
Discussion and Conclusion:
This study emphasizes leadership awareness among responders regarding digital readiness. Recommendations encompass investments in digital infrastructure, integration of high-quality digital learning materials, and ensuring equitable student access, community engagement, and staying current with emerging technologies are essential. It is mandatory to empower Libyan medical establishments to navigate digital transformation and to create a robust digital ecosystem to enhance patient care.

Introduction

Integration of digital technologies has become imperative for various sectors, including education and healthcare. The digital transformation has the potential to enhance the quality and efficiency of medical services while providing new learning opportunities for aspiring healthcare professionals (1),(2).

The merging of the internet and a commitment to sharing intellectual property has ignited a global movement aimed at opening up knowledge and educational resources (OER) for everyone. The OER not only contributes to leveling global access to knowledge but also holds the potential to revolutionize educational practices (3). Various resources play a pivotal role in supporting learning and educational methods.

In this paper, we explore the readiness of medical establishments in Libya for the digital era and its significance for quality assurance and accreditation. Our primary objectives for this study are to assess the readiness of medical establishments in Libya for the digital era and to identify the specific areas to improve for a smooth transition into the digital age.

As per the 2020 World Economic Forum's Future of Jobs report, over 80% of global companies have expedited their digitalization efforts in response to the COVID-19 pandemic. The need for digital transformation is expected to become an even more prominent requirement for organizations across diverse industries in the near future (4).

Digital transformation encompasses two dimensions. Firstly, it involves a cultural shift that begins at the organizational level and permeates to the individual level. Secondly, it necessitates a tangible technological change, entailing an infrastructure upgrade and the use of new technologies in processes and operations. Nonetheless, the true impact of digital transformation is rooted in the individuals who implement it (5).

Materials and Methods

The assessment of digital age readiness involves the appraisal of both institutes and employees. This paper is concerned with the study of the digital readiness of medical institutes in Libya.

A quantitative survey was prepared to assess the institution's digital readiness. The survey was sent digitally to the deans of the 17 medical faculties in Libya, and feedback was collected over a 3week period. The survey evaluated various dimensions of digital transformation within Libyan medical establishments, including infrastructure and resources, digital learning content, teacher training and development, student access and equity, data security and privacy, pedagogical approach, administrative support, assessment and evaluation, and community engagement.

We analyzed the findings and insights related to these dimensions to provide a comprehensive analysis of digital readiness.

Results

In this section, we provide the key findings from our study, shedding light on the strengths and weaknesses of the digital readiness landscape within Libyan medical establishments. We also highlight any significant challenges and opportunities identified during our research.

These findings could assist in optimizing the advantages of digitizing medical education and enable the formulation of a digital transformation strategy. This strategy would encompass the development of a competency framework, evaluating the workforce using Mercer | Mettl's Digital Readiness Assessment (DRA) tool and framework, known as 'An Inside-Out Approach,' which consists of two parts.The first part involves the assessment of digital potential, evaluating the behavioral competencies and cognitive abilities of employees to adapt and manage the digital transformation process. The second part involves an assessment of digital proficiency, measuring how effectively an individual can manage and protect digital data and information, collaborate through digital technologies, ascertain the digital readiness level of each employee, and help initiate the training process (5). The digital readiness assessment is a well-structured evaluation designed to gauge employees' essential digital skills, both on an individual and interpersonal level, as well as their capacity for change management and innovation (6).

The responder faculties are; AL Asmarya, Derna, Gharyan, Ajdabiya, Al Zintan, AL Zawiya, Omar Al Mukhtar, and Al Marj.

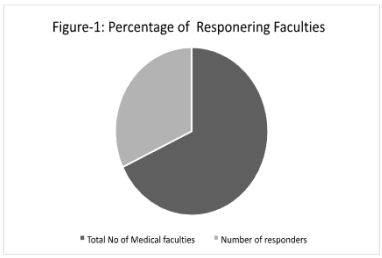
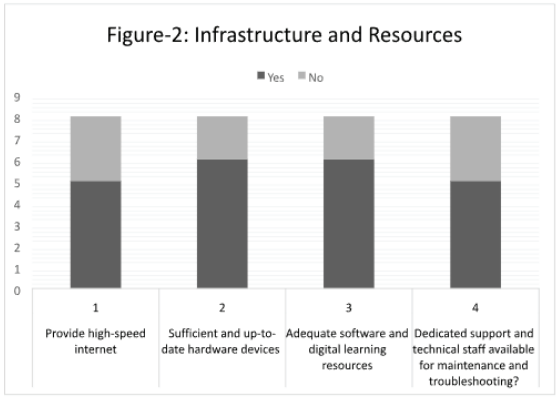


Figure-1: Percentage of Responding Faculties: The responders were 8 out of 17 (47) % of medical faculties in Libya.

Figure 2: Infrastructure and Resources. In this figure, we evaluated the availability of infrastructure. Sixty-two percent (62%)provide high-speed internet access throughout their premises, and seventy-five % (75%) have sufficient and up-to-date hardware devices like computers, tablets, and interactive whiteboards for teaching and learning. Seventy-five % (75%) offer adequate software and digital learning resources for educators and students, and 62% have dedicated IT support and technical staff for maintenance and troubleshooting.



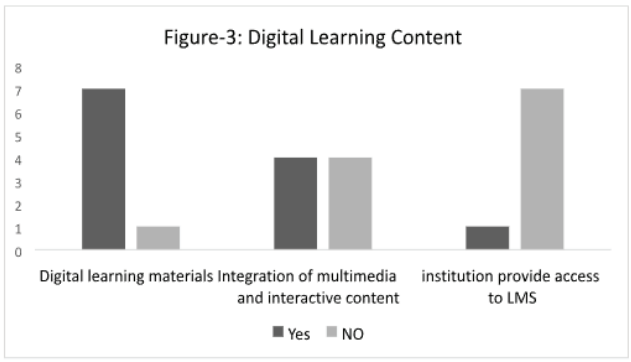
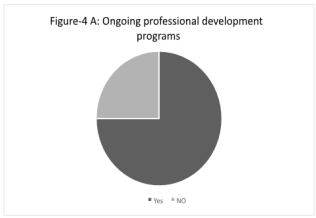


Figure 3: Digital Learning Content. Around ninety percent (87.5%) of faculties provide digital learning materials. However, only 50% integrate multimedia and interactive content. The most inconvenient shortcoming is the low percentage (12.5) of institutions providing access to learning management systems (LMS).

Figure 4: Teacher Training and Development. Figure-4 A: Seventy-five percent of faculties provide ongoing professional development and support for teachers to integrate digital tools (figure-4 B).



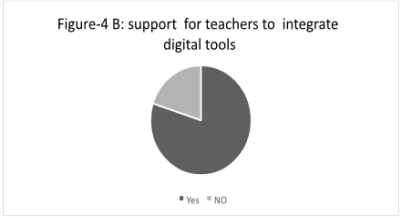


Figure 5: Assessment of Student access and equity. This figure showed that only 12.5% of faculties provide resources and support for students with varying technology (Figure 5A), while only 50 % have access to digital devices and internet (Figure 5B).

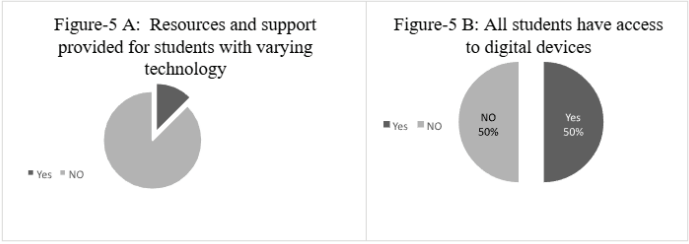
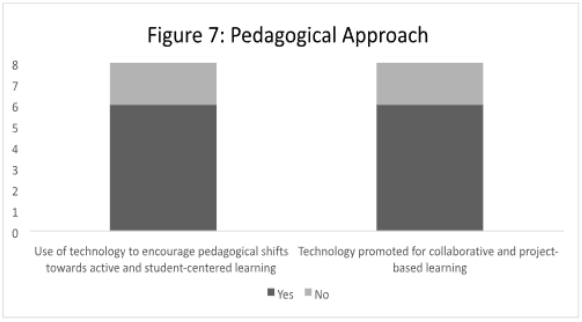


Figure 6: Data Security and Privacy. The faculties have 100 % compliance with data privacy regulations and guidelines, and 87.5 % implement robust data security.

Figure 7: Pedagogical Approach. Three-quarters of faculties (75 %) encourage technology pedagogical shifts towards active and student-centered learning and promote technology for collaborative and projectbased learning.



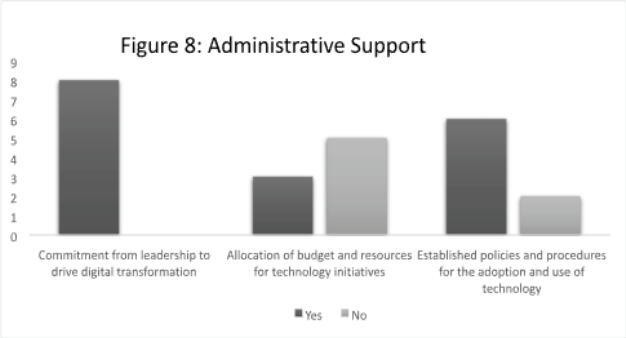
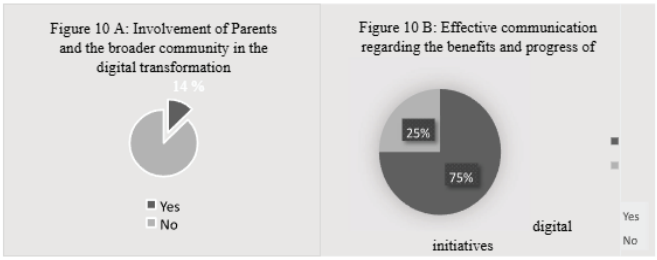


Figure 8: Administrative Support. All faculties have a (100 %) Commitment from leadership to drive digital transformation. Less than 40% of faculties allocate budgets and resources for technology initiatives. Seventy-five (75 %), have policies and procedures for the adoption and use of technology.

Figure 10: Community Engagement. Figure 10 A: One Institution among responders (14%) involves parents and the broader community in the digital transformation process, and 75% have effective communication regarding the benefits and progress of digital initiatives (Figure 10 B).



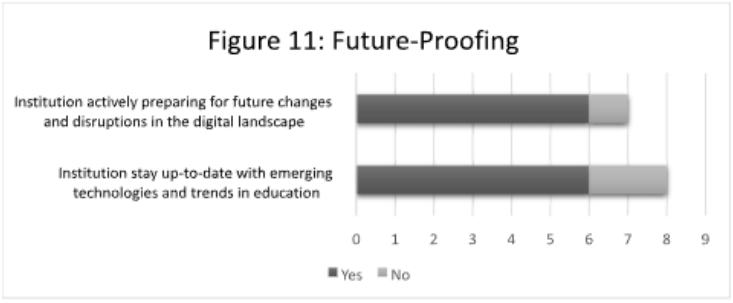


Figure 11: Future Proofing. A quarter of faculties (75%) stay up-to-date with emerging technologies and trends in education and actively prepare for future changes and disruptions in the digital landscape.

Discussion:

The presented findings highlight the progress and challenges in Libya as it strives to embrace the digital era. These insights are critical for understanding the current state of digital readiness and charting a path toward more effective digital integration in healthcare and medical education.

One notable observation is the relatively low response rate from medical faculties, with only 47% of deans participating in the survey. This response rate raises concerns about the level of engagement and awareness regarding digital readiness among medical leadership in Libya. Future efforts should aim to increase participation to obtain a more comprehensive perspective.

The study revealed that most faculties provide high-speed internet access, up-to-date hardware devices, and digital resources. It's a positive indication of the efforts made in terms of infrastructure.

E-learning in medical education as a tool to achieve educational goals. Achieving the full potential of e-learning depends on the readiness of the medical institutes, both in terms of human resources and infrastructure, which isn't always present in low- and middle-income countries (LMIC) (7). This finding is consistent with ours, as the use of LMS is about 10 % of Libyan Faculties. However, there is room for improvement in providing access to LMS, which plays a crucial role in digital education by wise resource allocation to bridge this gap.

While most faculties offer digital learning materials, there is a need for greater integration of multimedia and interactive content. Interactive learning can significantly enhance engagement and comprehension. The low percentage of institutions providing access to LMS is a significant concern, as these platforms can centralize and streamline digital education efforts.

The positive finding that 75% of faculties provide ongoing professional development and support for teachers in integrating digital tools is commendable. It highlights a proactive approach to ensure educators are equipped with the necessary skills for effective digital teaching. In the context of healthcare digitalization, essential competencies encompass a profound grasp of digital technology and the requisite skills for providing top-notch patient care. It includes interpersonal communication and ethical considerations related to digitalization's impact on patient care. Healthcare professionals must also display motivation and a willingness to gain practical experience with digital tools in their specific roles.

Support of colleagues and the institute plays a crucial role in shaping positive digitalization experiences for healthcare professionals (8).

The sustainability of the digital transformation journey relies on providing ongoing support and training to our educators. The e-learning approach, utilizing web-based spaced education for ongoing professional development, has demonstrated its significant benefits. This innovative curriculum incorporated principles like spaced learning, test-enhanced learning, and gamification theory, providing educators with flexible and engaging avenues for professional advancement (9).

The limited access to digital devices and the internet for students raises equity concerns. A thorough exploration of the principles underpinning the formation of an inclusive student community and the challenges encountered in implementing these initiatives are needed. A strategy that prioritizes continuous quality improvement, guided by core values such as social justice and constructive dialogue, fosters inclusion and elevates the quality of medical education. Addressing this issue is paramount to ensure that all students have equal opportunities to benefit from digital education.

Strategies for providing access to technology and connectivity should be a priority (10).

This study showed high compliance with data privacy regulations and robust data security implementation. The primary obstacle revolves around enhancing data quality, providing AI models with contextual information, and enforcing privacy, security, and ethics.

Robust eHealth ecosystems, well-prepared stakeholders, standardized data methodologies, and sustained investment in infrastructure are also necessary for overcoming these obstacles and advancing healthcare technology (11). Implementing a bring-your-own-device (BYOD) policy for personal mobile devices can save costs of medical schools and healthcare institutions by reducing the need for institution-owned devices. This policy aims to balance user convenience with security requirements (12).

The emphasis on using technology to encourage student-centered learning and collaborative approaches is a promising sign of the evolving pedagogical landscape.

Ejaz et al studied the state of artificial intelligence in medical education in 48 countries. The study suggests including AI education in the global medical student curriculum, emphasizing AI's relevance in healthcare, especially in clinical medicine. It also encourages involving students in algorithm development.

In LMIC, providing technology access and robust AI education is vital to enable healthcare innovation within these regions (13).

The move towards student-centered education with information communication technology (ICT) integration is apparent, highlighted by a survey across three Irish universities involving medical faculty and students. Internet Skills Scale assessed five internet-related skills, garnering responses from 78 faculty members with a 45% response rate and 401 students with a 15% response rate. Of note, the response rate is comparable to ours! This emphasizes the need for faculty skills training, support, and enhancing creative abilities for educators and students in online and distance learning contexts, thus enhancing student-centered learning (14).

Active learning methods and collaborative projects can enhance the educational experience and better prepare future healthcare professionals.

Wever et al, study shows that a unique method for creating and distributing educational materials is viable in Africa. It involves medical students collaborating on an affordable orthopedic video project for their peers, resulting in substantial viewership and watch time on YouTube. Notably, this content is accessible to audiences of different income levels, spanning low, middle, and highincome countries. Over three years, the students' educational videos consistently reached a worldwide audience (15).

Empathy is vital in patient-centered healthcare, benefiting patients and healthcare providers, but training healthcare trainees in clinical empathy lacks consensus. Research demonstrated that blended module design, which integrates a Massive Open Online Course (MOOC) with virtual learning, is promising and beneficial for the future and effectively improves empathy in dental undergraduate students (16).

In acknowledging the role of leadership, Health Data Research UK collaborated with Imperial and Edinburgh to initiate phase 2 of a program focused on leadership in digital health. The goal is to nurture a new generation of leaders capable of driving the NHS transformation through digitalization. This initiative provides participants with the necessary skills and expertise to lead change, enabling healthcare systems to leverage the many benefits and innovations of modern technology for patient care and organizational improvements (17).

While our results showed a strong commitment from leadership to drive digital transformation, the allocation of budgets and resources for technology initiatives remains a challenge. It is of utmost importance to secure the essential financial backing required to maintain digital progress in both medical education and healthcare.

The research indicates the potential for enhancing the evaluation of technology's influence on the teaching and learning processes. Consistent input from students, educators, and parents is indispensable for informed decision-making and ongoing enhancement.

Involving parents and the broader community in the digital transformation process can foster support and awareness.

The involvement of all stakeholders before a decision or change is primordial. Medical staff prioritize high accuracy in deep learning models, preferring specificity levels exceeding 90%, which significantly reduces overdiagnosis risk compared to FDA standards. However, residents prioritize doctor involvement in screening over model accuracy. Medical staff favors AI technology when supervised by doctors, both semi and fully-automated models, while residents disapprove of unsupervised AI. This can emphasize the significance of apprenticeship and the transfer of accumulated implicit human knowledge and skills.

It's recommended to use deep learning models under doctor supervision with high specificity, aiming to reduce repetitive tasks and enhance communication with residents through digital transformation (18).

The emphasis on staying up-to-date with emerging technologies and trends is commendable. Preparing for future changes and disruptions in the digital landscape is essential to ensure that medical establishments remain competitive and responsive to evolving healthcare needs.

Recommendations

Our study's recommendations emphasize critical priorities for Libyan medical establishments. Ensuring universal access to LMS is fundamental, requiring significant infrastructure investment. Curriculum enhancement, with a focus on high-quality digital learning materials, is essential.
Administrative support, including comprehensive digital training for educators and healthcare professionals, is crucial. Encouraging innovative teaching methods and robust data security and privacy measures are vital safeguards.
Equitable digital resource access for all students is paramount, fostering a supportive ecosystem engaging the broader community. Continuous evaluation and assessment are necessary to keep pace with evolving technology and healthcare demands.
Implementing these recommendations can drive a successful digital transformation in Libyan medical institutions, potentially improving healthcare outcomes and accrediting medical programs, benefiting patients and the healthcare sector. By implementing these recommendations, Libyan medical establishments can pave the way for a successful digital transformation, leading to improved healthcare outcomes and the accreditation of medical programs.

Conclusion

Our paper highlights the critical need to address obstacles to the digital transformation of medical establishments in Libya. The potential benefits of a robust digital ecosystem in healthcare and education, including improved patient care and enhanced medical education, are underscored. Prioritizing digital readiness is essential for fully realizing these advantages. Additionally, conducting a follow-up qualitative survey can further elucidate the strengths and weaknesses of Libyan medical institutions' readiness for the digital era. This study offers a comprehensive assessment of the current state of readiness, acknowledging progress while identifying areas requiring additional attention and investment. Implementing the proposed strategies can empower Libyan medical establishments to overcome challenges and embrace the opportunities afforded by the digital age, ultimately contributing to better patient care and the accreditation of medical programs.

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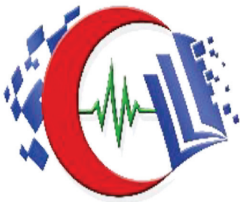

معاً لمستقبل صحـــي أفضل

إعـــــــــداد

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