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- South African Association of Community Pharmacist Sector of the PSSA
- SA Association of Hospital and Institutional Pharmacists
- SA Association of Pharmacists in Industry

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Aims, scope and review policy

SAPJ is aimed at the continuing professional development of the South African pharmacist in a variety of practice settings, including clinical pharmaceutical care practitioners in a community or hospital pharmacy environment, and pharmacists in academic and industrial practice.

The journal accepts specific clinical reviews on self-medication topics (symptomatic therapy) and information on prescription medication (therapy in clinical context), and provides pharmacists with essential information for referring customers for early medical attention should it be required. SAPJ further recognises that the role of the pharmacist continually evolves to meet the needs of the population. An example of this is the provision of accessible, basic primary health care services in community pharmacies.

Papers dealing with medicines safety issues, including the safe and appropriate prescription, administration and use of medication as well as pharmacovigilance, are strongly advocated in SAPJ. SAPJ further supports pharmacists in transforming the pharmacy into an accessible, basic primary health care facility for preventing and treating primary health care conditions through diagnosis, screening and treatment.

The journal is currently indexed by Google Scholar via www.sapj.co.za and enjoys wide international exposure. An 'electronic long, paper short' policy will be followed for original papers where abstracts of original papers are featured in the printed copy with the full version available online.

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2. This work is original and all third party contributions (images, ideas and results) have been duly attributed to the originator(s).
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Article sections and length

The following contributions are accepted (word counts include abstracts, tables and references):

Original research:	3 200–4 000 words
Evidence- based pharmacy practice:	3 200–4 000 words
Reviews:	2 400–3 200 words
Case studies:	1 800 words
Scientific letters:	1 200–1 800 words
Letters to the editor:	400–800 words

For a full version of the SAPJ author guidelines, please visit www.sapj.co.za

The unseen pillars: elevating the role of pharmacists in patient care

Natalie Schellack
Editor: SA Pharmaceutical Journal

As the International Pharmaceutical Federation (FIP) World Congress prepares to convene in Cape Town under the theme "Innovating for the Future of Health Care", the evolving landscape of healthcare in South Africa brings to light the complex dynamics between pharmacists and other healthcare professionals. This global gathering serves as a backdrop for reflecting on pharmacists and pharmacy practices in our country.

The journey towards integrating pharmacists more fully into the healthcare team in South Africa has been fraught with challenges. Despite their extensive training and expertise in medication management, pharmacists frequently encounter barriers when attempting to expand their roles beyond traditional dispensing duties. Having attended several conferences in the last two months, where conversations still revolved around the inclusion of pharmacists as part of the multidisciplinary team, it was particularly poignant to hear one pharmacist express his anticipation for the day when he, too, would be invited to ward rounds. This sentiment echoes the frustration and eagerness of many pharmacists to fully contribute their expertise to patient care. This tension is palpable in hospital settings, where pharmacists strive to contribute more directly to patient care but may face resistance or lack of understanding from other healthcare professionals. The FIP Congress's focus on "Advancing Pharmacy Practice" underscores the global recognition of this issue and the need for change internationally.

One cannot help but contemplate the underlying factors contributing to this situation. Historical hierarchies within healthcare, coupled with entrenched perceptions of professional roles, have created an environment where pharmacists' full potential remains underutilised. The concept of medical dominance, though rarely discussed openly, casts a long shadow over interprofessional interactions. Pharmacists report feeling frustrated, undervalued, and even apprehensive when engaging with doctors, highlighting the emotional toll of these power dynamics. The FIP theme of "Interprofessional Collaboration" directly addresses this challenge, emphasising the need for a more integrated approach to healthcare.

The ongoing PiMART court case, set to be heard at the High Court, exemplifies the struggle for recognition. Pharmacists are advocating for the right to prescribe antiretrovirals (ARVs), with substantial evidence from other countries demonstrating the efficacy and safety of pharmacist-prescribed ARVs. FIP has been actively advocating for the expansion of pharmacists' roles in public health. This includes initiatives to integrate pharmacists more deeply into healthcare systems, enabling them to contribute significantly to patient care and public health efforts. For instance, FIP has emphasised the importance of pharmacists in public health through various programs and policy recommendations, particularly during the COVID-19 pandemic, where pharmacists played a crucial role in maintaining healthcare services and supporting public health measures.

In South Africa, pharmacists are expected to take on expanded roles in primary healthcare, which aligns with FIP's vision of enhancing the role of pharmacists in public health. This includes providing more patient-centred services and participating in public health initiatives, which could significantly improve health outcomes and alleviate the burden on the healthcare system. The ongoing PiMART court case is in stark contrast with the progressive vision of FIP, which focuses on broadening the scope of pharmacists' contributions to public health and patient care. The legal battles surrounding PiMART leaves many patients without timely access to ART. Given that only 78.7% of diagnosed individuals are currently on treatment, any delay exacerbates the existing gap. Without PiMART, the already strained public health system may struggle to provide adequate care for the estimated two million people living with HIV who are not on treatment.

FIP's global #ThinkHealthThinkPharmacy campaign is an important way to achieve this goal. A number of major stakeholders in global health currently recognise pharmacists as healthcare professionals, including the United Nations, the International Labour Organization, the World Health Organization, and the Organisation for Economic Cooperation and Development. A wide range of health services, in addition to medicines supply and health advice, are being provided in pharmacies. Nevertheless, the pharmacy profession needs universal recognition of its unique place in primary health care.

Newly graduated pharmacists in South Africa are facing difficulties in finding community service or intern positions, despite the overall lack of pharmacist positions in the country. This issue resonates with the FIP theme of "Workforce Development and Support," emphasising the need for strategic planning to ensure a sustainable and well-utilised pharmacy workforce. In a memorandum handed over in April 2024 by a group called – 'Representatives of Unemployed Pharmacists SA' to various stakeholders, the group called for immediate allocation of

employment and letters of appointment for over 150 post-community service pharmacists in each province. They also called for the absorption of all community service pharmacists upon completion of their service and the filling of vacant positions to ensure a continuous cycle of employment in the public service.

The pending approval of regulations for specialisation in pharmacy by the Minister of Health further illustrates the challenges faced by the profession. This delay in recognising and formalising pharmacy specialisation contrasts with the FIP's emphasis on "Advancing Specialized Pharmacy Services," which recognizes the importance of specialised roles in improving patient outcomes. Specialisation in any profession allows for the deepening of knowledge and expertise within a chosen field. Some hospital groups in the private sector of South Africa have created positions that enable the growth of the pharmacy profession by appointing pharmacists to provide specialised services, these are knowledge driven services such as improving medication safety and efficacy, monitoring drug interactions, and offering specialised dosing assistance. The situation in the public sector, which serves approximately 86% of the South African population, is markedly different. The position of specialised pharmacists remains largely unrecognised and underutilised.

As we contemplate the path forward, it becomes clear that change must occur on multiple fronts. Interprofessional education and collaboration, a key theme of the FIP Congress, are crucial steps towards fostering mutual understanding and respect among healthcare professionals. By creating opportunities for doctors, nurses, and pharmacists to learn and work together during their training, we can begin to break down the silos that have long divided these professions.

The journey towards full recognition and integration of pharmacists as equal healthcare partners in South Africa is ongoing. It requires patience, persistence, and a commitment to excellence from every member of the profession. As we move forward, let us remember that the ultimate goal is not professional prestige, but improved patient care. By working collaboratively and advocating for their rightful place in the healthcare team, pharmacists can help create a more holistic, effective healthcare system that truly serves the needs of all South Africans.

In this process of change, it is essential to acknowledge that progress may be slow and at times frustrating. However, each step forward, no matter how small, brings us closer to a healthcare system where the unique skills and knowledge of pharmacists are fully recognised and utilised. The FIP World Congress in Cape Town offers a unique opportunity to catalyse this change, bringing global perspectives and best practices to bear on our local challenges. The path ahead may be challenging, but it is one that must be traversed for the betterment of patient care and the advancement of the healthcare profession as a whole.

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President's Message

Tshifhiwa Rabali
PSSA President

SAAPI Conference

On 5 June 2024, I attended the SAAPI conference at CSIR in Pretoria. The work that is being done by the industry together with SAHPRA as the stakeholder is huge and it is impressive that pharmacists are at the forefront in all this and are actively partaking in the industry advancements. As PSSA, we are immensely proud of our SAAPI members and the professionalism they continue projecting. Kudos to them for hosting a successful conference.

Winter season

The winter season is upon us and with all that it brings, I know that my colleagues out there are serving the citizens of this country with care and professionalism and ensuring that citizens are vaccinated against influenza. There is also the monkeypox (Mpox) that is currently affecting parts of our country. Mpox is preventable and manageable and treatment for both mild and severe cases is available. Pharmacists need to arm themselves with all the necessary knowledge so that the affected patients are being taken care and can fully recover. I salute all the colleagues in the frontline and will always cherish the good work being done out there.

Stakeholder engagements

Following the watershed elections in our country, PSSA was one of the organisation that has congratulated our new Ministers of Health, Dr Aaron Motsoaledi, and the Deputy Minister of Health, Dr Joe Phaahla, and we are hoping to engage with one of them soon as we will be moving towards hosting the International Federation of Pharmacists and Pharmaceutical Scientists' Congress that will be held in Cape Town in September. We will advocate and remain in the forefront in as far as issues that affect pharmacists in this country including our clearly defined role in the universal health coverage. We are also pleased that the Department of Health (DoH) has sent out a statement that suggests that most of the interns and community service health professionals have been placed up to now including pharmacists. We will follow up on that statement from DoH, to see if indeed all of our pharmacists have been placed.

Revitalisation of the PSSA branches

The national office under the leadership of our executive director is busy with the project of reviving branches that for a while have been struggling to deliver on its mandates and functions set out by the constitution of the Society. I am hoping that in the coming few months, PSSA will be having all its branches that are formally constituted and representing our members fully functional. Overall, this process will be beneficial to us all as there will be growth in the membership of the PSSA.

Lastly, I would like to thank all our members for their support and confidence in me as I was re-elected as the President of the PSSA for a second term. This is a very humbling experience, and I will always serve the pharmacy profession with passion and dedication.

I thank you all.

PSSA AGM

The PSSA AGM was held virtually on 10 June 2024.

Elections

At the AGM a new PSSA Executive Committee for the 2024/2025 year was elected. Congratulations to all members that were elected! The Exco has representatives from all 4 sectors and all branches, so if you would like to find out more or get more involved contact your Exco representative.

Presidential Committee

President	Tshifhiwa Rabali
Deputy President	Renier Coetzee
Honorary Treasurer	Lynette Terblanche
Immediate Past President	Joggie Hattingh
Vice-President: APSSA	Lorraine Thom
Vice-President: SAACP	Johannes Ravele
Vice-President: SAAHIP	Nhlanhla Mafarafara
Vice-President: SAAPI	Ingrid Duvenhage

Branch representatives

Border and Eastern Districts	Lwanda Mkhatshane
Cape Midlands	Alice Lategan
Cape Western Province	Ronel Boshoff, Jameel Kariem, Brent Sin-Hidge, Alex Wehmeyer
Free State	Martlie Mocke-Richter
KwaZulu-Natal Coastal	Mahendra Naidoo, Varsha Bangalee
KwaZulu-Natal Inland	Azraa Bassa
Limpopo	Mohale Seepe
Mpumalanga	Vacant
Northern Cape	Vacant
North West	Vacant
Pretoria	Byron Chukwu, Murial Kopanye
Southern Gauteng	Rashmi Gosai, James Meakings, Thanushya Pillaye
Vaal Triangle	Vacant
Ordinary members	Sham Moodley (KZN Coastal Branch) Ntombizodwa Luwaca (Border & Eastern Districts Branch) Seshnee Moodley (Border & Eastern Districts Branch)

Fellowship

Fellowship of the Society is to recognise those members who have consistently served to promote the profession and have significantly furthered the aims/objectives of the PSSA during his/her membership in exceptional ways at Branch, Sector and/or National Level over a significant number of years.

This year Fellowship of the PSSA was conferred on Refiloe Mogale and Dr Martlie Mocke-Richter.

Honorary Life Membership

Honorary Life Membership was bestowed on Ivan Kotzé.

Motivation received

Before his appointment as Executive Director of the Pharmaceutical Society of South Africa in 1994 Ivan was employed by the Department of Health from 1984–1994, where he held the position of Deputy Director, Medicines Control. His experience included inspections both locally and abroad, giving him a deep understanding and insight into the application of medicine law. Amongst others, he represented the SA Government at a number of meetings in Vienna Austria of the International Narcotics Control Board of the United Nations. The knowledge thus gained was to stand him in good stead in his new position as Director of PSSA as the country and its laws went through a vast transformation at the time. Health Councils such as Pharmacy Council, HPCSA, and Department of Health all underwent transformation. This required the forging of new working relationships and insight into development of new laws and standards pertaining to pharmacy practice. Ivan's experience and input largely ensured that the best interests of pharmacy were included in all these changes.

Over the past 30 years there have been an unprecedented number of changes to all laws pertaining to pharmacy as well as the introduction of new laws and regulations such as Labour Law, Competition Act, POPIA, Electronic Communications & Transmissions Act, Consumer Protection Act, BEE Act, etc., all of which impact on the practice of pharmacy. There have been particular challenges such as the introduction of lay ownership, new pricing regulations, and introduction of PAs, PCDT pharmacists. Throughout this time, Ivan's insight and knowledge proved to be invaluable. He steered all PSSA presentations made to the Health Committee of Parliament, instructed, briefed, and supported the legal teams in the various court challenges and gave generously of his time and talent in assisting other bodies such as USAP (now ICPA) in, for example, its representations to the Competition Commission. Particularly noteworthy, is the fact that the very wording in Hansard of the conditions of open ownership as accepted by Parliament, are those used by Ivan in the PSSA submission on the topic.

It is no exaggeration to say that the profession owes Ivan a huge debt of gratitude for constantly ensuring that the best interests of pharmacy have been maintained in our laws.

All these submissions and negotiations were characterised by Ivan's insight, patience, and sound legal argument. This won him great respect from all, including highly ranked civil servants, ministers, and lawyers. This is reflected in the fact that his advice is often sought by these people and the fact that he had been invited to serve on the then MCC Veterinary Committee and been appointed by the Minister of Health to serve as a member on 22 Appeal committees in terms of Section 24 of the Medicines Act, Act 101 of 1965.

Ivan's expertise and leadership has been recognised in other areas. He has represented the PSSA at PPS since 1994. He is a current Trustee of the PPS Holdings Trust – appointed in August 2001. He has also served for a number of years on the PPS Insurance Company as well as the PPS Group Audit Committee. He was appointed as a non-executive Director of PPS Health Care Administrators (Pty) Ltd in June 2017. Under his guidance, PPS has developed some unique services for pharmacists.

In the international pharmacy arena, Ivan is highly regarded and respected. Ivan was elected as President of the Commonwealth Pharmacists Association (CPA) in 2007 and served two terms for a period of four years. He also served as a Trustee for the CPA for a number of years. In recognition of his valuable contribution to the CPA he was honoured with Fellowship of the CPA in July 2017.

Ivan represented the PSSA as a Councillor on the International Pharmaceutical Federation (FIP) Council. His contribution to the work of FIP and wise counsel is much appreciated, and he is highly regarded by his peers internationally.

At the time of Ivan taking over as Director of the PSSA, the Society was in dire need of transformation. The Society had sold Medi-Kredit, so future income would rely solely on membership fees and investments. Up until then, much committee time and effort was taken up with the business of Medi-Kredit. Now the Society had to change focus, become more inclusive of all practice sectors, and concentrate on the professional interests of its members. Ivan, using his sound management skills of good planning and organising, considered personnel management, strict financial planning and budgetary control, and clear vision and leadership, saw to the transformation and development of the Society to fulfilling its vision of becoming "*the undisputed leader and guardian of the pharmacy profession*". The hard work in achieving this enormous task included:

- Writing of a new inclusive Constitution which provides for all Sectors and Branches.
- Restructuring of the budget, developing new improved services (e.g. PI) and additional income streams and exercising strict budgetary control. He leaves the Society with a healthy share portfolio, property investment and steady income growth.
- Developing a new Vision, Mission and Strategic Goals.
- Forging and maintaining good working relationships with SAPC and other statuary bodies, Government departments and voluntary professional organisations.
- Membership growth and transformation to become more inclusive of all pharmacists. Through ensuring excellent professional service provision membership is valued and has grown steadily.
- Staff management and development to meet the requirements of the transformed organisation. Ivan has a particularly good personnel management style, patient, consistent and encouraging. He has developed a happy, highly competent staff who serve the Society with exemplary professionalism.
- Forging a good business relationship with Pretoria Branch to become co-owners of a new office and conferencing complex suitable for the needs of the Society.
- Maintaining good working relations with all Branches and Sectors and their staff. This facilitated Branch and Sector contributions of time, financial and professional support in attaining certain goals in the national interest. e.g. establishment of YPG, FPE, etc.
- Ivan has been pivotal in assisting all Branches and Sectors in their own growth and development as well as providing unstinted support in times of crisis.
- Ivan also had the insight to include others in the PSSA's work in the best interests of the profession. For example, he was the driving force behind the organising of the Community Pharmacy Legal Trust, the Pharmacy Stakeholders Forum and the work done in providing input to the Pricing Committee.

The enormity of the task of transforming and developing the Society must not be underestimated. This has been achieved largely through the management and hard work of Ivan with the support of his committees. The Committee members and various leaders themselves have benefitted from his expertise, wisdom and assistance in fulfilling their duties, a fact to which many would testify.

Over the years Ivan has received the following awards:

- Fellowship of the PSSA
- Elected to the Senate of the Pretoria Branch of the PSSA
- The Ilse Snyman Memorial award from the Mpumalanga Branch of the PSSA

Ivan has served the profession for more than 40 years and the PSSA in particular, for 30 years since his appointment as Director in 1994. He has done so with dignity, integrity and exemplary diligence, always putting his vast knowledge, experience and insight into all laws pertaining to pharmacy, to full use in the best interests of the profession. Ivan richly deserves to be an Honorary Life Member of the Society in recognition of his distinguished service to the profession and his unprecedented diligence in developing and promoting the objects of the Society.

(L-R) Refiloe Mogale (PSSA Executive Director), Ivan Kotzé receiving his HLM certificate from Tshifhiwa Rabali (PSSA President)

PSSA Activities

Community service

The community service application and allocation process faced several challenges, including delayed timelines and administrative hurdles. As per norm, PSSA expressed concerns about the tight deadline for concluding the allocation process by 30 November 2023, highlighting the challenges of completing full employment processes during the festive season. The Department assured the PSSA and other stakeholders that the process would be completed in time for the commencement of duties on 1 January 2024. Furthermore, the PSSA confirmed with ICSP that advertised posts would clearly state their commencement dates, preventing applicants from facing unexpected delays and financial hardships due to posts being unavailable at the expected times. PSSA reported and addressed the issue where over 10% of members faced difficulties receiving their login details from ICSP during September 2022, which hindered their ability to apply for community service. Based on the number of queries we processed in the past, minimal setbacks were experienced in 2023. PSSA proactively voiced concerns when the preliminary allocations were delayed and worked with ICSP to ensure that allocations were communicated effectively to applicants. Numerous interventions were implemented with the intention of assisting our members, and these included:

- obtaining allocation letters for the unallocated members and ensuring they could commence their duties on the first available date.
- handling post application changes such as successfully engaging with provincial coordinators and high-level officials to reallocate applicants who were left without placements due to budget constraints or post availability issues.
- addressing unexpected changes, such as posts being withdrawn or delayed by working with affected members to find solutions and ensure they had placements and contracts.
- assisting members placed at correctional services facilities who could not receive their contracts due to unavailability of their degree certificates as required by the vetting process, by working with universities and correctional services to resolve the issue.

The PSSA requested a meeting with the Director-General of Health to discuss the challenges and experiences faced by applicants. This led to acknowledged concerns and planned interventions for mid-cycle and future cycles. Overall, PSSA's proactive engagement, advocacy, and support for its members ensured smoother application and allocation processes, mitigating delays and administrative challenges.

Codeine Care Initiative (CCI)

The South African Health Products Regulatory Authority (SAHPRA) together with key stakeholders including the PSSA, South African Pharmacy Council (SAPC), South African Nursing Council (SANC), and the civil society forum of the SA National AIDS Council (SANAC), is spearheading an initiative to mitigate the risk of overuse, misuse, and abuse of codeine-containing medicines in South Africa.

This comprehensive strategy and collaborative effort of the CCI showcase a commitment to safeguarding public health and ensuring a responsible supply chain for codeine-containing medicines. The initiative aims to collect data at every point within the supply chain, enforce participation through legislation, and promote public education on the dangers of codeine abuse. The key drivers of this initiative include the reviewing of legislation to enforce mandatory participation by all stakeholders, leveraging the Medicines and Related Substances Act to require necessary information by SAHPRA, plans to develop an industry-specific code to access patient data while complying with the Protection of Personal Information Act (POPIA), public education on the

dangers of codeine and establishing a whistleblower line to report transgressions, developing minimum standards for the supply of medicines with potential for misuse, which is above the current minimum standard for Pharmacist Initiative Therapy (PIT), extending its reach to include wholesalers and the development of webinar series aimed at healthcare professionals and the public covering topics from pharmacology to legislation and the role of codeine in pharmaceutical care.

Small branches projects

During the 2022/2023 financial year the PSSA initiated a new project allowing branches with less than 500 members to apply for funding for projects they wanted to complete in their branch to benefit the majority of the branch members. The Presidential Committee was granted the authority to review the applications and grant approval for the projects.

For the 2022/2023 financial year, three applications received were successful with two projects completed before the end of the financial year. The Cape Midlands Branch held a symposium for pharmacist's assistants that was a great success, and the assistants have asked that the symposium be held again.

The Border and Eastern Districts Branch created a podcast that was launched recently, and the funding was used for the editing of material recorded for the podcast. The branch also planned a research day which could not be finalised before the end of the financial year and was thus rescheduled for the current financial year.

For the 2023/2024 financial year the PSSA received four applications, and all were granted. Once the projects have been completed, reports will be shared to encourage other branches to emulate successful projects.

Responsible pharmacists

Earlier this year, the South African Pharmacy Council (SAPC) published two sets of board notices (BN) related to Responsible Pharmacists (RP) for public comment, sparking considerable controversy. The first notice, BN514 of 2023, issued on 24 November 2023, detailed the criteria for accrediting a generic short course for pharmacists seeking registration as Responsible Pharmacists. The second notice, BN543 of 2024, published on 2 February 2024, outlined the criteria for registering as an RP. These notices introduced a new requirement mandating pharmacists to complete a short course to qualify for RP registration. This proposal faced widespread objections from the pharmacy profession, including the Pharmaceutical Society of South Africa (PSSA).

The PSSA argued that the Council is not authorised by primary legislation to publish regulations and that any changes to the registration requirements for RPs must be enacted through regulations issued by the Minister of Health. In our submission, we acknowledged the significant responsibilities carried by RPs and noted that pharmacists are not always fully aware of these obligations. We proposed that the SAPC develop a set of guidelines to support the professional development of pharmacists, particularly young pharmacists, regarding the duties and requirements of an RP. We also suggested that this training be offered in the form of workshops tailored to the prospective RP's level of experience and practice setting, rather than as a formal short course, to ensure a more flexible and relevant approach as it cannot be a one-size-fits-all approach.

Mid-level workers

On 19 April 2024, the long-awaited amendment to the regulations relating to the registration of persons and maintenance of registers and the amendment detailing the scope of practice for pharmacy technicians and the updated role of pharmacist's assistants were published. While these amendments represent significant progress, incorporating pharmacy technicians as mid-level workers into practice will be a lengthy process with implications yet to be fully established which may include challenges such as overlapping responsibilities and limited career pathing opportunities. Additionally, there are ongoing consultations within the HRH department and with stakeholders regarding the amendments to these regulations. Now we wait in anticipation for the publication of the amendments to the regulations making provision for specific categories for existing specialist pharmacists and new categories of specialist pharmacists and the scopes of practice of specialist pharmacists.

Pharmacy museum

Following the sale of the Southern Gauteng property at 52 Glenhove Road, the museum was relocated to the Aspen Healthcare Park in Woodmead. The PSSA expresses its gratitude to Aspen for generously offering to host the museum. The Pharmacy Museum is now registered as a Section 21 company, with a board of directors consisting of appointees from both Aspen and the PSSA. The PSSA National Office has assumed responsibility for the museum, including insurance and other administrative matters. The PSSA also extends heartfelt thanks to Lynette Terblanche for her dedicated efforts in packing, moving, and setting up the museum at Aspen, as well as for serving as its curator. The museum is now open to visitors free of charge, with prospects of an official launch before the end of the year.

Legacy projects

With anticipation building for the FIP World Congress 2024 in Cape Town, FIP invited the PSSA to identify legacy projects that will have a lasting impact beyond the conference. The PSSA has proposed three projects, all of which have received FIP's support and approval from the PSSA NEC.

The first project is the PSSA partnering with FIP and the CTICC on a community project to support a community organisation including Ikhaya lethemba. With this partnership, PSSA, FIP and the CTICC aim to collect books, stationery, clothes, blankets, toys, and non-perishable foods for the most vulnerable communities. The partnership was announced on Mandela Day on 18 July 2024.

The second project is the Medicines to Africa initiative which is a crowdfunding project developed in partnership with Pharmacists without Borders and FIP. This initiative aims to collaborate with a charity organisation dedicated to humanitarian causes, providing crucial assistance in the event of natural or other disasters affecting countries across the African continent. The third project is on the Basel Statements, a high-level foresight on the future of hospital pharmacy. The project aims to compare the statements with the GPP, ideal clinic and hospital frameworks, assess pharmacy operations utilising the Basel statements toolkit and finally promoting the Basel statements to all stakeholders. This project has a potential for international reach.

The PSSA/Alpha Pharm distance learning programme 2024

The PSSA/Alpha Pharm distance learning programme continues to offer pharmacists useful, practical, up-to-date information that enables them to provide optimal pharmaceutical care to their patients.

Module 3, 2024 – Immune Support

A healthy immune system is needed to fight infection, prevent disease, and maintain overall well-being. Lifestyle factors like diet, exercise and stress levels influence immune function. The use of immune-supporting supplements has increased significantly in the last few years, particularly since the emergence of the COVID-19 pandemic. Dietary supplements are not meant to treat, cure, or prevent diseases; but are intended to add to or "supplement" a healthy diet. Immune-supporting supplements can contain a vast array of ingredients, ranging from vitamins and minerals to herbal compounds. When used in the correct circumstances, immune-supporting supplements are beneficial for health and immunity. It is important for the community pharmacist to discern when an immune-supporting supplement may benefit a customer.

Pharmacists should familiarise themselves with the most common ingredients found in immune supplements and how they function within the body. Furthermore, identifying which groups of people are vulnerable to immune impairment is key to advising on suitable products.

As a pharmacist, it's important to discern which supplements are safe to recommend and may offer genuine benefits to individuals and when to approach supplementation with caution.

For more information about this programme, contact Gill or Glynis at Insight Medicine Information on 011 706 6939 or email: cpdalphapharm@insightmed.co.za.

The PSSA/Alpha Pharm clinical education programme 2024 for pharmacy staff

The PSSA/Alpha Pharm pharmacy staff clinical education programme continues to offer front-shop assistants or pharmacists' assistants up-to-date information that enables them to provide optimal pharmaceutical care to their patients. All pharmacy staff need to be familiar with the use of unscheduled medicines and should be reminded of when it is necessary to refer the patient to the pharmacist.

Module 3, 2024 – Immune Support

A healthy immune system is needed to fight infection, prevent disease, and maintain overall well-being. Lifestyle factors like diet, exercise and stress levels affect immune function. The use of immune supplements has increased significantly in the last few years, particularly since the start of the COVID-19 pandemic. *Dietary supplements are not meant to treat, cure, or prevent diseases; but can add to or "supplement" a healthy diet*. Immune supplements contain a variety of ingredients, ranging from vitamins and minerals to herbs and spices. When used in the correct circumstances, immune-supporting supplements are beneficial for health and immunity. It is important for the front shop worker to understand the role of supplements in health and immunity.

Front shop workers should familiarise themselves with the most common ingredients found in immune supplements, how they function within the body and which population groups may benefit from supplementation.

If you would like to participate in the PSSA/Alpha Pharm pharmacy staff clinical education programme, please contact Gill or Glynis for further information on 011 706 6939 or email: cpdalphapharm@insightmed.co.za.

Welcoming the new YPG steering committee and future plans

The Young Pharmacists' Group (YPG) of the Pharmaceutical Society of South Africa (PSSA) held its Business Meeting (BM) on 04 June 2024. This highlighted the success of the introduction of the portfolio subcommittees in 2023-2024 and saw the election of the 2024–2025 Steering Committee (SC).

Notable developments included the proposal of motions to expand the committee with additional positions in the future. These potential new roles include a Secretary, Liaison Coordinator, and Chair-elect, which will be further developed by the incoming SC should the motion be ratified at the PSSA AGM. Our goal with these motions is to promote our early career pharmacists, facilitate opportunities for involvement in leadership whilst fostering the future growth of our young pharmacist community.

Introducing the incoming YPG steering committee

We are excited to introduce the newly elected members of the YPG Steering Committee who will lead us through the upcoming year:

- **Ntombizodwa Luwaca, Chairperson** Ntombi is an early-career pharmacist known for her commitment to delivering exceptional pharmaceutical care. With a keen attention to detail and a dedication to continuous learning, Ntombi applies her knowledge with precision. She is passionate about making a difference in the community and advocates for positive changes to enhance patient experiences.
- **Kevin Baloyi, Project Coordinator** A recent graduate from the University of Witwatersrand, Kevin Baloyi completed his internship at Mecklenburg Hospital in 2023 and is currently fulfilling his community service. He is a dedicated mental health advocate with a strong track record of leadership within student organizations. Kevin brings a fresh perspective and energetic drive to his new role.
- **Alexander West, Public Relations Officer** is a skilled pharmacist with diverse experience in clinical trials, community pharmacy, academia, primary healthcare, and hospital pharmacy. He earned his Bachelor of Pharmacy (BPharm) from Nelson Mandela University and holds a PIMART qualification from the South African HIV Clinicians Society. Currently, he serves as a Research Pharmacist at the UCT Institute of Infectious Disease and Molecular Medicine.

YPG 7th Annual Business Meeting – Key Takeaways

Chairperson position

The position of Chair for the 2024/25 Steering Committee was initially vacant. Byron Chukwu proposed, supported by Brent Sin Hidge, a motion to allow the outgoing chair, Ntombizodwa Luwaca, to continue in her role, which was passed with 14 votes in favour. The suggestion to mentor an individual to take over the chair position in the future also supported this decision.

Proposed and passed motions

Motion 1: Ms Luwaca's continuing as Chair with the new Steering Committee passed with 14 votes in favour.

Motion 2: To introduce a Liaisons Officer and a Secretary position to support the Chair. This motion was also passed with 14 votes in favour and required changes to the operational guidelines, which the PSSA NEC must ratify.

Motion 3: To release the call for nominations for the two additional Steering Committee members after the NEC ratifies motion 2. This motion was passed with 14 votes in favour.

The full minutes of the Annual Business Meeting are available via this link: https://www.pssa.org.za/cms-system/documents/download/PSSAYPG_7thBM_Minutes2024.pdf

Keep an eye on our newsletter for future SC and subcommittee openings and opportunities to get involved!

Upcoming events and survey

Our YPG events, while eagerly anticipated, have sometimes faced postponements due to low RSVP turnout. To better serve our community, we will be conducting a survey to assess young pharmacists' perceptions regarding in-person events. Your feedback will be crucial in organising events that truly spark interest and engagement among our early-career pharmacists.

Stay connected and get involved

We encourage all members and prospective members to stay connected with YPG and PSSA through our social media channels. Follow us on LinkedIn, Facebook, and Instagram to stay updated on the latest news, events, and opportunities.

- **Follow Us:** Stay updated with YPG and PSSA activities by following us on LinkedIn, Facebook, and Instagram.
- **Participate in the Survey:** Keep an eye out for the upcoming survey in our newsletter and on social media. Your input is invaluable!
- Join YPG: If you are not yet a part of the YPG but wish to join or get more involved, contact us via email or through our social media pages.
- **Communication Preferences:** How do you want to hear from the YPG? Let us know your preferred communication channels and methods by participating in our survey and sharing your thoughts.

Together, let's continue to build a vibrant, supportive community of young pharmacists dedicated to professional growth and positive change in the pharmaceutical field.

Website	Facebook	Instagram	LinkedIn
www.pssa.org.za/young-pharmacists-group	Young Pharmacists' Group of PSSA	@pssaypg	Young Pharmacists' Group of the PSSA.

Feel free to reach out to us at
Email: ypg@pssa.org.za
Facebook: Young Pharmacists' Group of PSSA
Instagram: @pssaypg
Young pharmacists – connected, engaged, empowered and inspired!

Beat the itch: allergic conjunctivitis and its management

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Abstract

Allergic conjunctivitis (AC) includes a range of conditions triggered by allergens found in the environment, and specifically affecting the eyes. Because patients do not seek medical assistance, and most prefer to treat with over-the-counter medicines, accurate diagnosis is often not possible. AC typically does not impair vision; however, the symptoms can diminish quality of life. Early diagnosis and proper treatment are crucial to enhance patients' quality of life, reduce recurrence rates, and prevent potential complications. AC typically affects both eyes and is characterised by common symptoms and signs such as itching, sensation of having a foreign body in the eye, watery or mucus-like discharge, redness of the conjunctiva, and reaction involving papillae on the inner surface of the eyelid. The primary goal of non-pharmacological management is the avoidance of allergens. Pharmacological management includes the administration of topical antihistamines, vasoconstrictors, mast-cell stabilisers and anti-inflammatory agents. The correct way of administering the eye drops to the eye is important, and the pharmacist may play a crucial role in educating patients.

Keywords: allergic conjunctivitis, management, eyes

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Introduction

Allergic conjunctivitis (AC) comprises a range of conditions triggered by the eyes' reaction to allergens found in the environment, impacting as much as 40% of the world's population.[1,2] Despite being widespread, a significant number of those affected fail to seek medical assistance, resulting in inadequate diagnosis and treatment.[2] There are recognised connections between allergic rhinoconjunctivitis and other allergic conditions such as asthma, eczema, food allergies, and eosinophilic esophagitis.[3] Most patients experience concurrent allergic rhinitis, with only 6% having symptoms limited to the eyes.[3] Approximately 44% of children and 20% of adults diagnosed with asthma display symptoms indicative of AC.[3] This underscores the significance of gathering specific details about ocular symptoms when evaluating patients to accurately assess their eye involvement.[3] While AC typically does not impair vision, it presents significant symptoms and substantially diminishes the quality of life for affected individuals, particularly children and adolescents who are more prone to certain types of the condition.[1] In some cases, severe forms of AC can adversely affect vision by complicating and potentially leading to corneal scarring and pannus formation (growth of fine blood vessels onto the clear corneal surface).[1] Therefore, early diagnosis and proper treatment are crucial to enhance patients' quality of life, reduce recurrence rates, and prevent potential complications.[1] AC typically affects both eyes and is characterised by common symptoms and signs such as itching, sensation of having a foreign body in the eye, watery or mucus-like discharge, redness of the conjunctiva, and reaction involving papillae on the inner surface of the eyelid.[1]

Aetiology

The types of AC include acute, seasonal allergic conjunctivitis (SAC), perennial allergic conjunctivitis (PAC), Vernal Keratoconjunctivitis (VKC), atopic keratoconjunctivitis (AKC) and giant papillary reaction (GPC).[1,4] However, the most common types of AC are SAC and PAC, which account for over 95% of ocular allergy cases in the United States.[1] The allergens that are attributed to SAC are tree pollen, wood pollen and grass pollen, with grass pollen representing the most frequent allergen.[4,5] Dust mites or pet hair, animal dander and moulds are the primary sensitisers in PAC. Ocular symptoms can sometimes be caused by food allergens as well.[4,5]

Pathophysiology

The cornea and conjunctiva provide barrier protection for the eye, against foreign invasion of environmental elements.[6] The ocular mucosa has a large surface area, which exhibits different immunological responses, which result in the inflammation of the cornea and conjunctivitis. AC is a type 1 immunoglobulin-E (IgE) mediated hypersensitivity reaction.[7] The direct contact between an allergen and the ocular surface triggers the allergic reaction. Type 2 helper T (Th2) cells, in sensitised individuals release pro-inflammatory cytokines (IL-3, IL-4, IL-5 and IL-13), which stimulate the production of IgE by the B-cells (a type of immune system blood cell).[3] IgE binds to mast cells, resulting in mast cell degranulation. Inflammatory modulators such as histamine, tryptase, leukotrienes and prostaglandins are subsequently released.[6]

The activation of the allergic cascade occurs within seconds to minutes after exposure to an allergen and this early phase clinically lasts for 20-30 minutes.[8] The symptoms experienced in the early phase include pruritus, chemosis, redness and watering

of the eyes. The late phase of the allergic response begins a few hours after initial exposure. It is characterised by increased vascular permeability, migration of inflammatory cells such as the eosinophils, lymphocytes and neutrophils.[2] Furthermore, the inflammation continues, symptoms persist, and this results in tissue damage.[2]

Non-pharmacological treatment measures

Allergen avoidance is a primary goal in the management of all types of AC. However, this routine recommendation may be impossible to avoid in the presence of airborne allergens due to the large surface area of the eyes. The exposure to pollen and outdoor mould can be decreased by closing windows and use of air conditioners.[3] Frequent cleaning of households and using air filters will provide relief from environmental allergens, such as house dust mites and pet dander. Patient awareness to avoid outdoor activities during seasons with high allergens, should be increased to reduce exposure to allergens. Wearing masks for additional protection may also reduce exposure to allergens. Cold compresses provide relief from inflammation and alleviate ocular symptoms such as itching. Wearing wraparound glasses improves photophobia and can decrease contact with airborne allergens.[9]

Pharmacological treatment

One third of patients with AC are normally undiagnosed and untreated.[1] The majority of patients with ocular allergic disease prefer self-medication with over-the-counter (OTC) preparations, regardless of their ability to lose effectiveness overtime with prolonged use.[5] Common adverse effects resulting from overuse of OTC therapies, include ocular toxicity, which is induced by the preservative benzalkonium chloride (BAK), used in about 70% of OTC eye drops, rebound vasodilation, and tachyphylaxis.[4,10] Anti-allergic eye drops that maintain ocular surface homeostasis while avoiding the toxic effects of preservatives such as topical antihistamine bilastine and dual agents olapatadine, ketotifen, and azelastine should be considered as standard of care.[5]

In recent practice, the use of vasoconstrictors and decongestants, antihistamines, mast cell stabilisers, topical corticosteroids, NSAIDs, and dual-acting agents as treatment options are mainly aimed at relieving and controlling symptoms.[6] The types of treatment options available for AC are listed in Figure 1. However, there's been significant advances in the treatment of severe or ocular allergy, particularly in immunomodulators and immunotherapy, which are the only disease-modifying treatments available and may provide lasting benefit.[11]

The choice of treatment for AC is dependent on the presence of signs and symptoms on diagnosis, the identification of signs of multisystem disease as in generalised allergic symptoms and in cases of failure of current therapy to control symptoms.[3] As such a treatment algorithm is used in the management of newly diagnosed patients and patients with long standing AC**.** The following treatment algorithms were derived from clinical trial studies and systematic reviews together with specialist advice in clinical practice. They provide an overview on the stepwise approach taken towards the treatment of AC.[3]

Topical treatment

Vasoconstrictors and decongestants

Naphazoline is among the first FDA approved α-adrenergic agonists used as OTC agents in 1971, followed by other agents such as tetrahydrozoline, phenylephrine, ephedrine, and brimonidine.[1] The mechanism in AC through sympathomimetic vasoconstriction decreases congestion at the site of administration and provides symptomatic relief for eye redness and itching.[12] Alpha-adrenergic agonists have a rapid onset but short duration of action. They are commonly known for causing tachyphylaxis, rebound hyperaemia, mydriasis, and blepharitis, and are not recommended in adolescents and children.[1] Their effectiveness as decongestants has only been proven when used together with topical antihistamines in clinical trials.[12]

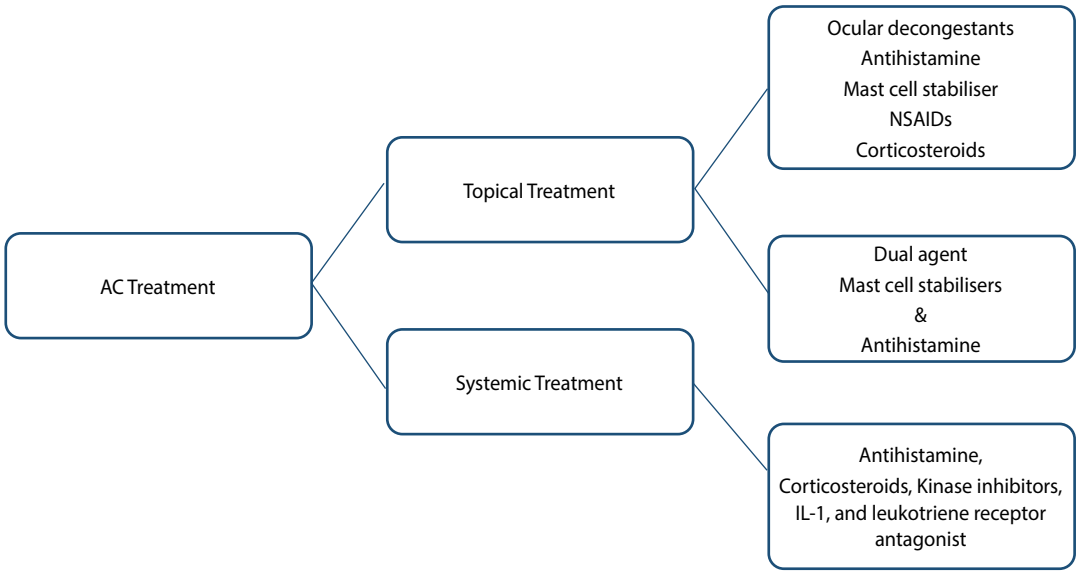

Figure 1: Pharmacological treatment used for allergic conjunctivitis[3]

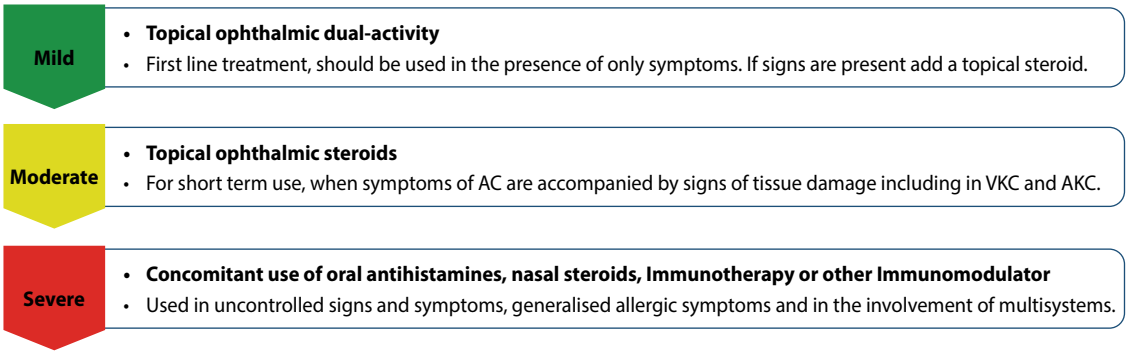

Figure 2: Illustrates the Treatment Algorithm for AC[3]

Antihistamine

Topical antihistamine agents exert their action by blocking H1-receptors thus preventing histamine binding and activity at the H1 receptor site. They are indicated for symptomatic relief of itching, redness and teary eyes.[13] Antazoline and pheniramine are examples of first-generation topical antihistamines that were used for AC, however, they are poorly tolerated and have a limited potency and short duration of effects. These are often combined with the vasoconstrictors naphazoline and tetrahydrozoline, (Spersallerg), to increase half-life and reduce dosing frequency, but have been recently replaced by newer agents like levocabastine and emedastine.[12] Possible side effects include eye sting, sedation as they cross the blood-brain barrier and keratitis.[14]

Mast cell stabilisers

Mast cell stabilisers are used as prophylactic therapy. They inhibit mast cell degranulation and the release of histamine by preventing calcium influx across mast-cell membranes.[15] Common examples of mast cell stabilisers include cromolyn sodium, lodoxamide and pemirolast. Lodoxamide is mostly preferred over cromolyn sodium, as it has a more rapid onset of action with less stinging.[16] The concurrent use of mast cell stabilisers with topical steroids or H1-antagonists for the first few weeks of therapy is advised due to delayed time to reach peak efficacy and not having immediate relief from symptoms.[16]

Topical corticosteroids

Topical ophthalmic corticosteroids (loteprednol [0.2%, 0.5%, fluorometholone alcohol 0.1%) are indicated in severe ocular allergy and in acute exacerbations as short, pulsed therapy.[12] They cause inhibition of phospholipase A, resulting in inhibition of prostaglandins and leukotriene synthesis.[1] Though these agents are highly effective, they may cause severe adverse reactions such as increased intraocular pressure, increased susceptibility to infections, cataract development, and delayed wound healing.[5]

Table I: Characteristics of topical agents used for the treatment of SAC and PAC

Topical agent	Example of the drug	Dose	Dosing frequency
Antihistamines	Cetirizine	2.4 mg/ml	Three times daily
	Levocabastine	0.5 mg/ml	Twice daily
	Bilastine	0.6 mg/ml	Once daily
	Emedastine	0.5 mg/ml	Twice daily
Corticosteroids	Antazoline + tetryzoline (Spersallerg)	0.5 mg/ml, 0.4 mg/ml	Three to four times per day
	Dexamethasone 0.01%	1 mg/ml	Four to 6 times daily
	Loteprednol (0.2%, 0.5%)	5 mg/ml	Four times daily
	Fluorometholone alcohol 0.1%	1 ml/mg	Two to four times daily
Mast Cell S tabilisers	Cromolyn sodium		Four to six times daily
	Lodoxamide	1 mg/ml	Four times daily
	Pemirolast	1 mg/ml	Four times daily
NSAIDs	Ketorolac	5 mg/1ml	Four times daily
	Nepafenac	1 mg/ml	Three times daily
		4 mg/ml	
	Bromfenac	0.9 mg/1 ml	Twice daily
Dual-action agents	Ketotifen	0.025 mg/ml	Twice daily
		0.05 mg/ml	
	Olopatadine	1 mg/ml	Twice daily
		2.22 mg/ml	Once daily
	Epinastine	0.5 mg/ml	Twice daily
	Bepotastine besilate	15 mg/ml	Twice daily
	Alcaftadine	2.5 mg/ml	Twice daily
	Azelastine	0.5 mg/ml	Twice daily

Intranasal steroids such as fluticasone furoate, and mometasone furoate have also been considered in the management of AC to reduce ocular symptoms associated with allergic rhinitis.[12]

Nonsteroidal Anti-inflammatory Drugs (NSAIDs)

NSAIDs inhibit the cyclooxygenase pathway and thus reduce the synthesis of prostaglandins and thromboxane.[11] They are indicated for short term relief of pain. However, they cause a myriad of side effects such as stinging, keratitis, ocular hypertension and are contraindicated in patients with asthma and nasal polyps.[1] Examples of topical NSAIDs include ketorolac 0.4%, nepafenac, and bromfenac.

Dual-acting agents

Topical dual-acting agents have both local antihistamine and mast cell stabilising properties. They are preferred as first-line agents by allergists and eye practitioners in the management of AC.[1] They are clinically superior monotherapy agents as they provide both prophylactic benefit and immediate symptom relief.[17] Ketotifen, olopatadine, alcaftadine, and bepotastine besilate are examples of the most used topical dual agents. Olopatadine was the first dual agent approved by the FDA in 1996.[1] It has been found superior to other agents in reducing itching and redness, decreasing the tear histamine level, decreasing chemosis, eyelid oedema and significantly improving quality of life.[3,18]

Table I highlights the examples of the topical ophthalmic preparations, and further outlines the dosing regimen, and the frequency of administration of each drug.

Systemic treatment

Systemic treatment for AC includes systemic antihistamines (cetirizine, loratadine), corticosteroids (prednisolone), selective glucocorticoid receptor agonists (SEGRAs), kinase inhibitors, IL-1 receptor antagonist, and leukotriene receptor antagonist. Systemic antihistamines are less effective in treating AC but have been deemed effective in patients with comorbid rhinitis or sinusitis.[19] SEGRAs are targeting the anti-inflammatory pathway of corticosteroids to cause effect with less side effects. Kinase inhibitors, IL-1 antagonists and leukotriene receptor antagonists play their role in the inflammatory cascade at a molecular level.[1]

Immunomodulators

The two immunomodulators topical calcineurin inhibitors cyclosporine A (CsA) and tacrolimus are used in the treatment of GPC, VKC and AKC. Recent studies have shown tacrolimus to be the same if not more effective than CsA in the management of VKC and is used in patients not responding to CsA.[8] In cases of severe AC such as AKC and VKC, systemic immunosuppression with CsA, tacrolimus or mycophenolate mofetil is achieved. The side effects of treatment with calcineurin inhibitors include stinging/burning sensation, and the risk of molluscum contagiosum virus, papillomavirus, or herpesvirus infection.[12]

Immunotherapy

Immunotherapy provides etiological treatment and should be administered under the guidance of a specialist.[5] The main objective of immunotherapy is to reduce the occurrence and prevent the recurrence of symptoms when exposed to known allergens.[1] Immunologic changes that take place include the downregulation of T2 response and upregulation of regulatory T cells that produce inhibitory cytokines, resulting in a less end-organ response to allergen exposure.[3] Two main types of immunotherapies include sublingual immunotherapy (SLIT) and subcutaneous immunotherapy (SCIT).[3]

Patient education for topical medicine administration

In most patients, eye-drop administration errors increase the risk of treatment failure or harmful adverse effects.[20,21] Beyond compliance, the eye drop administration technique consists of

Figure 3: Application of ophthalmic solutions or suspensions[24]

Spersallerg®

RAPID RELIEF FROM OCULAR ALLERGIES[1,2]

References: 1. Spersallerg® Sterile Eye Drops approved package insert, February 1975. **2.** Wertheimer R, Bleßmann G. Antazoline/tetryzoline in comparison with levocabastine eyedrops in acute allergic conjunctivitis. Klin Monbl Augenheilkd. 1997;210(2):93-96.

S2 Spersallerg® Sterile Eye Drops. Each 1 ml contains: antazoline hydrochloride 0,5 mg; tetryzoline hydrochloride 0,4 mg. Ref. No. H1283 (Act 101/1965). Under license from Novartis Pharma AG, Hettlingen, Switzerland. For full prescribing information refer to the professional information approved by the medicines regulatory authority (February 1975).

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adcock ingram prescription

numerous action steps, which can variably affect the efficacy of the medicine.[22] Most patients fail to instil eye drops correctly, which include positioning of the dropper bottle, the force required to produce a drop from the bottle or trying to avoid accidental contamination of the dropper.[22] Contamination during handling by the end user is a risk for microbial transmission and infections.[23] Patient education is a promising approach to prevent mistakes in eye drop administration, and the pharmacist can play a crucial role in providing education to patients.[22] Refer to Figure 3 for the application of eye drops.[24]

Conclusion

AC is one of the most common ophthalmic conditions, however, it remains as one of the most undiagnosed and undertreated conditions. The vast options of OTC medications available for symptomatic relief have led to many patients opting for self-medication rather than seeking medical advice. This has resulted in patients being treated with AC at an advanced stage where medical therapy is ineffective or has progressively led to ocular damage. Treatment options available for AC include topical agents administered for symptomatic relief and systemic agents normally given in patients with comorbid rhinitis or sinusitis. The development of immunomodulators and immunotherapy agents aims at reducing the occurrence and recurrence of AC through etiological management. Patient education on administration techniques plays a huge role in ensuring treatment efficacy, thus should be a key area of note in managing patients with AC.

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Mental health update – update on depression with a focus on escitalopram

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Abstract

Depression is one of the heterogenous diseases included in the International Classification of Diseases (ICD-11), published by the World Health Organization (WHO). Depression affects more than 300 million people globally. Almost 10% of the total burden of disease in sub-Saharan Africa is attributed to neuropsychiatric disorders, with depression disorders being the most diagnosed. Symptoms may include feelings of worthlessness, concentration and sleep difficulties, and suicidal ideation. There are different types of depression, with major depression being the most prevalent. The potential pathogenesis has been explored in various research, and it encompasses hypotheses from different angles such as genetics, neurotransmitters and hypothalamic-pituitary-adrenal axis, among other contributing factors. Both pharmacological and non-pharmacological treatments are effective for depression, however, antidepressant drugs (ADs) remain the primary treatment, particularly the selective serotonin re-uptake inhibitors (SSRIs), for example escitalopram. Untreated depression can result in emotional, behavioural and physical health problems that affect every area of that individual's life. This review article aims to summarise the hypotheses in the pathogenesis of depression and discuss its treatment, with particular focus on escitalopram.

Keywords: depression, escitalopram, antidepressant therapy, selective serotonin reuptake inhibitors

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Introduction

Depression, clinically known as major depressive disorder (MDD) is the most prevalent psychiatric condition globally.[1] It is characterised by persistent feelings of sadness, and lack of interest or pleasure in daily activities.[2,3] Despite effective treatments being available, depressive disorders are often overlooked and undertreated.[3,4] This under-treatment has historically been attributed to the stigma surrounding depression and inadequate assessment of symptoms.[2] However, recent data suggests that reduced social stigma and the availability of effective treatment options has led to increased rates of diagnosis.[4] Nonetheless, only a small portion of patients receive adequate treatment.[3]

Depression severely limits psychosocial functioning and diminishes quality of life.[5,6] It can cause difficulties at school and work and affect interpersonal relationships.[7] It is estimated that depression and anxiety result in the loss of 12 billion productive workdays annually, costing the global economy one trillion United States dollars.[8]

Depression is a complex mental health disorder influenced by a variety of factors. Established risk factors for depression include:[9]

- Genetic factors: heritability, specific genetic loci and gene-environment interactions contribute to the development of depression.
- Environmental factors: childhood adversities, significant life stressors and chronic medical conditions are major contributors.
- Psychosocial factors: impaired social support, loneliness and caregiver burden are significant psychosocial risk factors.
- Neuroendocrine/neurochemical factors: abnormalities in neuroendocrine systems and neurodegenerative diseases play crucial roles in the development of depression.

Given the widespread prevalence and severe impact of depression, there is a critical need for effective treatment options. Traditional treatments include pharmacotherapy, such as antidepressants, and psychotherapy, including cognitive-behavioural therapy (CBT).[9-11] Selective serotonin reuptake inhibitors (SSRIs) such as escitalopram, are preferred due to their effectiveness and better tolerability compared to the older tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs). Escitalopram is regarded as an appropriate first-line antidepressant for moderate to severe major depression.[12] This review aims to provide an updated overview of the use of escitalopram in the treatment of depression.

Depressions

Depression can be characterised as a feeling of being sad, unmotivated, hopeless, irritable, as well as a general lack of interest or pleasure in life.[13] The concept explaining the etiology and pathophysiology of depression or depressive disorders is unclear, despite numerous in-depth studies.[14] Owing to its complexity, it cannot be explained using a single theory. Other than the psychological and social determinants of depression, there are various proposed biological hypotheses explaining the pathogenesis and these include genetic abnormalities, monoamines and neurotransmitter irregularities, dysfunction of the Hypothalamus-Pituitary-Adrenal (HPA) axis, neurotrophic

factors and neuroplasticity, inflammatory hypothesis and microbiome disturbances. Notably, depression may also develop because of somatic diseases or other mental conditions.[14,15]

Approximately 31–42% of depressive disorders are hereditary with 37% heritability demonstrated in twin studies.[15,16] Genetic predisposition is suspected in patients whose parents or siblings have suffered from recurrent depression in which the depression started at a relatively young age such as in childhood, teenage years or twenties. Some of the possible genetic causes include polymorphic genes, such as the serotonin transporter gene variants, related to the neurotransmission of serotonin, norepinephrine and dopamine (DA). They inhibit serotonin re-uptake, therefore predisposing individuals to depression.[15,16]

Neurotrophic factors regulate plasticity within the adult brain, and a decrease in these factors contributes to depression. This is evident in findings of volume reduction in the hippocampus and other forebrain regions seen in depressed patients.[17] The depletion of Brain-Derived Neurotrophic Factor (BDNF) appears to impair neurogenesis and, therefore, contributes to the onset of depression.[16]

Monoamines and other neurotransmitters

Neurotransmitters play an important role in depression etiology and the deficiency in monoamine neurotransmitters is the most common biochemical, neurophysiological explanation for depression. Monoamines include serotonin, noradrenaline and DA.[15,18] Serotonin (5-HT), a widely distributed neurotransmitter in the nervous system, can cause depression, phobias, anxiety and other mental health disorders when deficient. Serotonin results in depression through low 5-HT levels in the brain or altered 5-HT receptors such as upregulated 5-HT_2 and downregulated 5-HT_{1A} receptors as observed in depressed patients.

Another dominant neurotransmitter in the brain is DA, a precursor to epinephrine and norepinephrine responsible for regulating behavior.[19] In depressed patients, there is an increased level of DA transport resulting in increased reuptake of DA by presynaptic neurons.[20]

The monoamine hypothesis is confirmed through response of depressive patients to tricyclic antidepressants and monoamine reuptake inhibitors, proving an imbalance and neuromodulator deficiency in these patients.[15]

Glutamate, as the primary excitatory neurotransmitter in the brain, plays a role in synaptic plasticity, cognitive function as well as motivational and emotional behavior.[21] Elevated levels of glutamate, according to research, have been found in the blood, cerebrospinal fluid (CSF) and in the brains of patients with depression.

Gamma-aminobutyric acid (also known as GABA) is the opposite of glutamate as its primary function is inhibitory. GABA neurons participate in the regulation of anxiety, they are also involved in motivation and the reward system and play a crucial role in alleviating symptoms associated with MDD.[22]

Stress is one of the contributing factors to depression onset.[23] The hypothalamic-pituitary-adrenal axis (HPA) plays a vital role in stress response and a shift in the axis during depressive illness could be indicative of the involvement of stress. Exposure to stress triggers, leads to the release of the corticotropin-releasing hormone (CRH) from the hypothalamus. The CRH stimulates the pituitary to produce adrenocorticotrophic hormone (ACTH) that subsequently stimulates the adrenal cortex to secrete glucocorticoids.[24] Glucocorticoids elicit their effects in multiple target organs, including the HPA axis, causing feedback inhibition. This differs in depressive patients because the stress-induced HPA axis overactivity can lead to high cortisol levels with insufficient regulatory feedback.[25,26]

Immune system disturbances are involved in the development of depression.[27] It has been found by numerous early studies that depression is more common in patients who were exposed to autoimmune or infectious diseases as compared to the general population. It has been also shown that exposure to cytokines,

Table I: Overview of major depressive disorder diagnosis

Diagnostic criteria	Requires five or more specified symptoms, including depressed mood or anhedonia, over a two-week period. Chronic depression is termed persistent depressive disorder or dysthymia if symptoms last for at least two years.[29]
Symptoms	Depressed mood or anhedonia; Significant weight change or appetite disturbance; sleep disturbances; psychomotor agitation or retardation; fatigue; feelings of worthlessness, decreased ability to concentrate; recurrent thoughts of death or suicide.[30]
Screening tools	Patient Health Questionnaire-9 (PHQ-9) Hamilton Rating Scale for Depression (HAM-D) Beck Depression Inventory (BDI) Montgomery-Asberg Depression Rating Scale (MADRS) Zung Self-Rating Depression Scale[30,31]
Routine lab work	Used to exclude medical causes but not for diagnosing depression. Includes blood count, metabolic panel, thyroid function, vitamin D, urinalysis, and toxicology screening.[31]
Differential diagnosis	Depression symptoms must be differentiated from other conditions, such as bipolar disorder, anxiety disorders, schizophrenia, and bereavement. Persistent symptoms beyond typical grieving or adjustment period may indicate MDD.[29]
Primary care considerations	Many patients present with somatic complaints and may deny depressive feelings. Assessment for suicidal or homicidal ideations is crucial.[31]

in individuals who do not suffer from depression may result in those individuals' showing symptoms of depression.[28] Various pro-inflammatory cytokines, chemokines and soluble adhesion molecules, a sign of an immune-inflammatory response, are present in the peripheral blood and CSF of depressive patients. Inflammatory markers cause immune activation in the CNS, which can impact behaviors.[16,27]

Diagnosis

Diagnosing depression involves a comprehensive approach that integrates diagnostic criteria, symptom assessment and screening tools. The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) outlines specific criteria for MDD, including the presence of five or more symptoms over a two-week period, with at least one being depressed mood or anhedonia.[11,29] Challenges in diagnosing depression often arise due to overlapping symptoms, comorbid conditions, and variability of clinical presentations.[29] For a detailed overview of diagnostic criteria, tools, limitations, and other considerations please refer to Table I.

Management of depression

Non-pharmacological measures

There are various approaches in the management of depression including pharmacotherapy, psychotherapy and somatic therapy often used for treatment resistant depression.[32]

Somatic therapy: Somatic therapy for depression is a device-based approach that consists of introducing transient electric or magnetic current onto the scalp or to anatomically deep brain structures. The mechanism of action is largely attributed to increasing the level of neurotransmitters and sensitisation of post-synaptic receptors through changing the neuronal firing in the regions involved.[18] Electroconvulsive therapy (ECT) is the first effective somatic therapy to be used for the treatment of mental disorders with a widespread clinical use to date.[33]

Transcranial magnetic stimulation (TMS) is another type of somatic treatment which induces depolarisation of cortical neurons by the use of magnetic current that passes through a metal coil applied to the scalp of the patient, making it non-invasive.[34]

Pharmacological treatment

Majority of the available antidepressant drugs work by modulating the brain monoamine neurotransmission. The primary mechanism of these drugs is increasing the overall synaptic concentration of monoamines (serotonin, norepinephrine and dopamine).[32] They achieve this either by binding to the respective neurotransmitter transporter and blocking their reuptake into the presynaptic neuron or through inhibition of the monoamine degrading enzyme MAO.[35]

Tricyclic antidepressants act primarily by elevating serotonin and norepinephrine levels via reuptake inhibition. However, as they also antagonise muscarinic acetylcholine receptors, they are prone to anticholinergic side effects (e.g. dry mouth, blurry vision, constipation and urinary retention), which often limit their usefulness in the clinical practice setting. In addition, TCAs are known to cause prominent weight gain and sedation and can block cardiac sodium channels, which, in the case of an overdose, may lead to sudden cardiac death.[35]

Monoamine oxidase inhibitors inhibit the activity of the enzyme, monoamine oxidase, and thereby preventing the breakdown of the monoamine neurotransmitters. Two enzyme isoforms exist, namely MAO-A and MAO-B, which preferentially degrade different amines.[36]

This class has potentially lethal interactions with food, particularly foods rich in tyramine (e.g. aged cheese), and with other medications. Fatal serotonin syndrome or a hypertensive crisis may develop due to the inappropriate use of these agents. In fact, MAOIs should not be used together with SSRIs due to a potentially lethal increase in serotonin levels, known as the so-called serotonin syndrome. MAOIs are also known to promote weight gain and cause fatigue and hypotension.[36]

Some newer MAOIs such as selegiline and the reversible MAOI, moclobemide, have proven to be safer options.[35]

Selective serotonin re-uptake inhibitors are the preferred choice of treatment for depression. Unlike the TCAs, these agents only have selective serotonin reuptake-inhibition property and therefore avoid many of the other side effects of the TCAs such as anticholinergic and cardiac side effects. Additionally, they do not require dietary and drug-related restrictions as the MAOIs do. These agents block the serotonin reuptake pumps, acutely raising this transmitter in neuronal synapses.[36]

SSRIs may cause headaches, gastrointestinal disturbance, insomnia and fatigue, but are generally better tolerated than other antidepressants. Paroxetine eventually may allow more weight gain and may be the most sedating along with citalopram. Furthermore, sertraline may have more adverse gastrointestinal effects.[35]

Escitalopram

Escitalopram is one of the most commonly prescribed newer SSRIs worldwide.[37] Escitalopram is the racemic form of citalopram and is a more potent inhibitor of serotonin reuptake It has been found to be more than twice as potent as citalopram in the inhibition of serotonin uptake in in vitro binding studies.[38] It is more effective with a higher response rate than the other SSRIs and fewer side effects.[36] It was also shown to have less withdrawal symptoms compared to the other SSRIs.[39] Just like citalopram, escitalopram can cause significant QTc prolongation, potentially increasing the risk of ventricular arrhythmias, however at a less rate than the other antidepressants. Escitalopram is rapidly absorbed and reaches maximum plasma concentrations in approximately 3–4 hours. Escitalopram has low protein binding (56%) and it is unlikely to cause interactions with highly protein-bound drugs.[38]

Table II: Pharmacokinetic and pharmacodynamic properties of escitalopram[40,41]	
Pharmacokinetics	
Absorption	Rapid absorption with peak plasma concentrations (C_max) reached within 3–4 hours post-dose.
Bioavailability	Approximately 80%
Distribution	Widely distributed in the body, volume of distribution is approximately 12–26 L/kg
Plasma protein binding	About 56%
Metabolism	Metabolized primarily in the liver by CYP2C19, CYP2D6, and CYP3A4 enzymes
Elimination half-life	Approximately 27–32 hours
Excretion	Mainly excreted via urine; around 8% unchanged and the rest as metabolites
Steady-state concentration	Achieved within 1 week of consistent dosing
Pharmacodynamics	
Mechanism of action	Selective serotonin reuptake inhibitor (SSRI); increases serotonin levels in the synaptic cleft
Allosteric modulation	Unique allosteric interaction with the serotonin transporter (SERT)
Binding affinity	High affinity for the serotonin transporter
Selectivity	Highly selective for serotonin transporter with minimal effect on norepinephrine and dopamine
Therapeutic effects	Improvement in depressive symptoms, anxiety reduction
Side effects	Common: nausea, insomnia, fatigue, dry mouth; less common: sexual dysfunction, increased sweating

A summary of the pharmacokinetic and pharmacodynamic properties of escitalopram is available in Table II.

Escitalopram has been demonstrated to be superior to other antidepressants for the acute phase treatment of major depressive disorder in terms of efficacy, acceptability, and tolerability.[37,42]

Special populations

Escitalopram is well tolerated by elderly patients with MDD and should be used preferentially in this population as other SSRIs have interactions or adverse effects due to their additional mechanisms.[43] However, the use of multiple medications in this population increases the risk of drug interactions and side effects. Dosage adjustments are typically recommended with gradual titration to minimise side effects and regular monitoring of electrolytes and renal function is recommended.[40,41] Escitalopram is also approved for use in children and adolescents due to its favourable efficacy and safety profile, however there is increased risks of suicidal ideation in this population.[44] Thus, monitoring of emergent suicidal thoughts or behaviours is necessary, combined with family/caregiver involvement in treatment plans to assist with adherence and improve outcomes.

The use of escitalopram during pregnancy and breastfeeding requires a careful risk-benefit analysis. While untreated depression poses significant risks to both the mother and the foetus, SSRIs, including escitalopram, have been associated with potential risks such as preterm birth, low birth weight, and persistent pulmonary hypertension of the newborn[45] Thus, if treatment with escitalopram is deemed necessary, the lowest effective dose should be used. Close monitoring throughout pregnancy and the postpartum period is advised to manage potential risks to both the mother and the infant.

Important interactions between escitalopram and other medications or foods are detailed in Table III.

Serotonin Norepinephrine reuptake inhibitors inhibit serotonin and norepinephrine reuptake pumps, allowing treatment of a wide range of depressive symptoms. Some of the side effects include initial increase in anxiety, insomnia, and restlessness, as

Table III: Medication/food interactions with escitalopram[46,47]	
Medication/Food	**Interaction**
Monoamine oxidase inhibitors	Risk of serotonin syndrome. Avoid use within 14 days of discontinuing MAOIs.
Other SSRIs	Increased risk of serotonin syndrome. Avoid concurrent use unless closely monitored.
Tricyclic Antidepressants (TCAs)	Can increase TCA plasma levels, risking toxicity. Monitor TCA levels and adjust dosages.
NSAIDs and Anticoagulants	Increased bleeding risk. Use with caution and monitor for bleeding.
CYP2C19 and CYP3A4 Inhibitors	Can increase escitalopram levels. Adjust escitalopram dosage if used with inhibitors.
Alcohol	Can exacerbate side effects like drowsiness. Limit or avoid alcohol consumption.
Lithium and Triptans	Increased risk of serotonin syndrome. Use with caution and monitor closely.
Antiepileptic Drugs (AEDs)	May affect plasma levels of AEDs. Monitor levels and adjust doses as needed.
Grapefruit juice	Can inhibit CYP3A4 enzyme, increasing escitalopram levels. Avoid excessive consumption.
Caffeine	High intake can increase anxiety and insomnia. Advise moderation of caffeine.

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THE ACCORD DIFFERENCE IN MENTAL HEALTH

SSRIs = selective serotonin re-uptake inhibitors
SASOP = South African Society of Psychiatrists

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well as possible sexual dysfunction and headaches. Compared to the SSRI class, the SNRI class tends to induce more nausea, insomnia, dry mouth, and in rare cases, elevated blood pressure.[36]

Atypical antidepressants

There are other antidepressants that do not fall into any of these categories and are considered unique or atypical antidepressants, such as mirtazapine and bupropion.

Mirtazapine inhibits norepinephrine's alpha-2 auto-receptors, allowing more norepinephrine to be released from nerve terminals. It also blocks 5-HT_{2A} receptors, thus allowing more serotonin, dopamine, and norepinephrine modulation in the cortex. As such, it achieves greater neurotransmitter levels via a different mechanism of action than the SNRI or SSRI drug classes. This also explains its different side-effect profile. It does, however it causes severe drowsiness and because of that, the use of mirtazapine is limited.[36]

Trazodone can be viewed as a mixed serotonergic agonist–antagonist and is more widely referred to by clinicians as a serotonin antagonist and reuptake-inhibitor (SARI). It acts as a serotonin agonist at high dosages and a serotonin antagonist at low dosages. It is considered, like mirtazapine, as a sedating agent.[36]

Bupropion has no effect on serotonin. It is a norepinephrine–dopamine reuptake-inhibitor (NDRI), due to its dual mechanism that raises both DA and norepinephrine levels. This gives it a unique side-effect profile characterised by no sexual dysfunction or weight gain. In fact, as it promotes weight loss, it is contraindicated in patients with eating disorders.[36]

Conclusion

Depression is widely associated with a decline in neurotransmitter concentrations, like serotonin and noradrenaline, in the CNS. Hence, treatment is aimed at restoring these neurotransmitter levels to normal, to enhance daily functioning and alleviate the symptoms that these patients suffer from. Escitalopram's consistent efficacy and favourable tolerability profile and fewer adverse events makes it a valuable tool in the management of MDD and GAD. It appears to be suitable as first-line antidepressant treatment. Clinicians should remain vigilant about monitoring and managing side effects, ensuring that patients receive the maximum benefit from this medication. As the landscape of mental health treatment evolves, escitalopram's role will likely remain significant, supported by continued research and clinical practice innovations.

Conflict of interest

The authors declare that there are no conflicts of interest

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Crystals of pain: navigating gout and its management

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Abstract

Gout is a form of inflammatory arthritis, caused by the buildup of uric acid crystals in the joints, especially the big toe. If left untreated these tophi, or crystals can become extremely painful, and over time may result in damage to bone and soft tissue. It is important to get a correct diagnosis on gout and to differentiate with other diseases like septic arthritis, rheumatoid arthritis and even stress fractures. Non-pharmacological treatment and prevention strategies include sufficient rest and adequate dietary and lifestyle modifications. The management of gout distinguishes between treatment for acute gout symptoms and the prevention of a gout attack or the lowering of uric acid in the serum. Urate-lowering therapy, like allopurinol and febuxostat, lowers blood urate levels, can prevent gout flare-ups and diminishes tophi over time. Treatment with one or more potent anti-inflammatory medication is necessary for the management of acute flares. Four categories of medicine are available for treatment of acute symptoms of pain and inflammation. They include nonsteroidal anti-inflammatory medicine, corticosteroids, colchicine, and anti-IL-1β biologics. Efficacy between these agents is similar, thus focus should be on minimising individual risks. People with a tendency to develop gout must limit their consumption of red meat, fish, shellfish and alcohol, particularly those that have additional purines such as beer, wine and whiskey.

Keywords: gout, urate-lowering therapy, allopurinol, colchicine

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Introduction

Gout is a common form of inflammatory arthritis that occurs due to a buildup of uric acid in the body over time.[1,2] Since the body cannot easily dissolve and excrete high uric acid levels via urine, the uric acid starts to crystallise and form sharp crystals known as tophi in the joints, usually in the joint of the big toe.[3,4] The tophi initially cause no pain; however, they can become painful over time and may result in damage to the bone and soft tissue, leading to misshapen joints.[2] Although the big toe is more commonly affected, other joints affected by gout are the knees, ankles, feet, hands, wrists, and elbows.[1,5] The presence of high levels of uric acid in these joints causes severe pain and inflammation.[2]

Gout can affect anyone, but it is more prevalent in men, and women usually develop it after menopause.[4] The condition typically begins in middle age, but if it starts at a younger age, the symptoms are usually more severe.[2] Gout is a progressive disease that can go through several stages.[3]

In the first stage, known as hyperuricaemia, elevated urate levels in the blood lead to the formation of crystals in the joints, as shown in Figure 1.[3] Typically, there are no symptoms during this stage.[2] The second stage is characterised by gout flares, which involve periodic attacks of intense joint pain and swelling.[3] Intercritical gout, the third stage, is the period between gout attacks when there are no symptoms.[2] The final stage, chronic gout, involves the accumulation of tophi in the joints, skin, or other parts of the body.[1] Depending on their location, tophi can cause permanent damage to the joints and other internal organs, increasing the risk of developing other conditions or complications, especially related to the heart and kidneys.[2,3] Comorbidities that may increase the prevalence of gout include:[3]

- Hypertension (high blood pressure)
- Chronic kidney disease
- Obesity
- Diabetes
- Nephrolithiasis (kidney stones)
- Myocardial Infarction (heart attack)
- Congestive heart failure
- Sleep apnoea
- Depression

The diagnosis of gout is not always straightforward, and a differential diagnosis may be necessary. Other diseases can

Figure 1: Stages of gout progression[3]

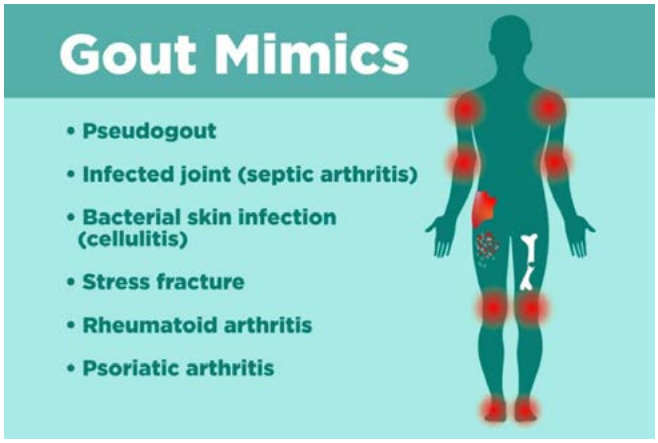

Figure 2: Diseases that mimic gout[6]

present similarly to gout and cause a misdiagnosis as shown in Figure 2.[6]

Pseudogout

Pseudogout, formerly known as calcium pyrophosphate deposition disease or CPPD, is now commonly referred to as pseudogout due to its similarity to gout.[7] Both gout and pseudogout cause sudden joint pain, swelling, and redness, which makes them difficult to differentiate.[8] It is the type of crystals formed in the two conditions that differ.[7] For gout, it is uric acid, while in pseudogout, it is crystallised calcium pyrophosphate (CPP).[6]

Infected joint (septic arthritis)

Both gout and an infected joint can cause fever and an increase in white blood cells.[4] However, the presence of an offending microorganism in the fluid taken from the affected joint indicates septic arthritis, as it is an infection, unlike gout.[6] Treatment of septic arthritis is directed at eliminating the offending bacteria.

Bacterial skin infection (cellulitis)

Both gout and cellulitis can cause inflammation and pain in the lower leg.[7] The difference is that in gout there is an accumulation of uric acid crystals in a joint, while cellulitis is a bacterial infection in the deep layer of the skin.[6] A blood culture can be used to differentiate the two conditions.

Stress fracture

Gout is often mistaken for injuries to the toes caused by dropping heavy items on the toes or jamming the big toe against a hard surface. Stress fractures can occur without the individual being aware and are frequently confused with gout.[6] An X-ray can assist with identifying the cause of the pain if a stress fracture is suspected.

Rheumatoid arthritis

In individuals with polyarticular gout, which affects several joints, gout is often mistaken for rheumatoid arthritis.[6] The key distinction is that gout typically starts by affecting one or a few joints, while rheumatoid arthritis tends to involve multiple, larger joints symmetrically and can affect many organs in the body.[4] Blood tests, such as anti-CCP, C-reactive protein, erythrocyte sedimentation rate, and rheumatoid factor, can help doctors distinguish between gout and rheumatoid arthritis.[6]

Psoriatic arthritis

As with rheumatoid arthritis, psoriatic arthritis (PsA) can cause swelling around the fingers or toes, which may resemble gout tophi.[6] However, with PsA there is no buildup of uric acid crystals in the joints.[4,6]

Pathophysiology and clinical presentations

Table I: Pathophysiology of gout

Aspect	Details
Pathophysiology	Gout is characterised by elevated serum uric acid levels (hyperuricaemia), typically exceeding 6.8 mg/dL.[9]
Uric acid crystal formation	As blood uric acid levels increase, urate crystals form.
Clinical presentation	**Kidney Stones:** Formation of uric acid crystals can lead to kidney stones
	Tophi: Deposits of urate crystals in joints and tissues can form tophi (chalky nodules).
	Gouty Arthritis: Urate crystal deposition in joints can cause episodes of gouty arthritis, characterised by sudden and severe joint pain.[10]

Hyperuricaemia

Hyperuricaemia is characterised by elevated levels of uric acid in the bloodstream, typically exceeding 6 mg/dL in women and 7 mg/dL in men.[11] Uric acid is produced during the breakdown of purines in the body as shown in Figure 3.[12,13] Research has additionally demonstrated a correlation between elevated uric acid levels and various other health conditions, such as kidney disease, heart disease, hypertension, diabetes, non-alcoholic fatty liver disease, and metabolic syndrome.[14,15,16] Hyperuricaemia causes cardiovascular disease and chronic kidney disease by prompting abnormal growth of vascular smooth muscle cells and impaired endothelial function, which triggers inflammation.[17]

Inflammatory response

Hyperuricaemia gradually progresses and promotes the formation of monosodium urate (MSU) crystals, triggered by various factors such as dehydration, alcohol, hypertension, thereby causing inflammation in the joints.[18,19] Inflammatory cytokines, particularly IL-1β, are the key mediators of gouty inflammation.[20] The NLRP3 inflammasome is the major pathway by which MSU crystals trigger the cellular inflammatory response as shown in Figure 4.[21] Delivery of ingested MSU crystals to the inflammasome in phagocytes subsequently triggers intracellular assembly of the cytosolic NALP3 (cryopyrin) inflammasome protein complex.[21] The MSU crystals cause the inflammasome assembly, which in turn causes caspase-1 activation, phagocyte maturation, and the production of IL-1β.[20]

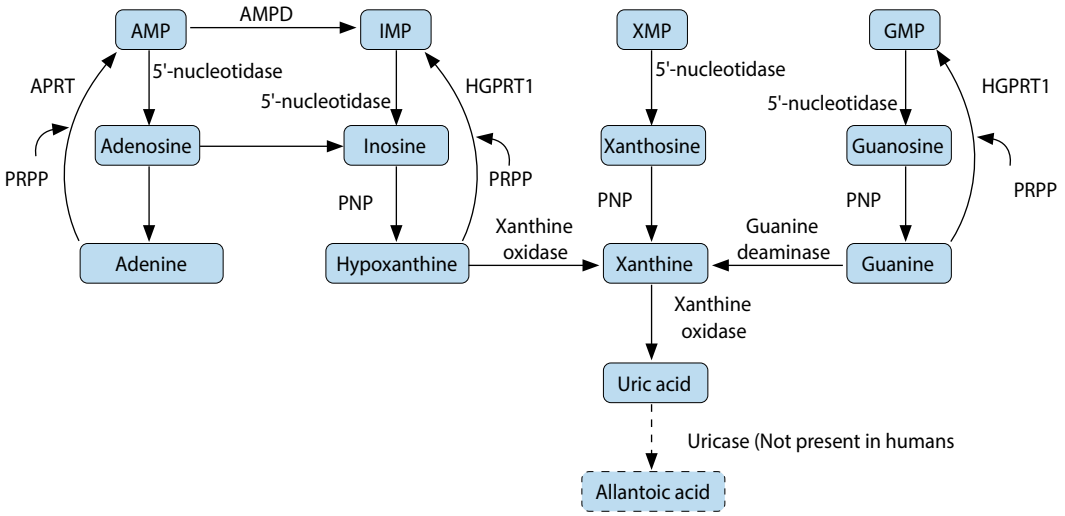

Figure 3: Uric acid synthesis and purine metabolism in gout[13]

Acute gout attacks

Acute gout attacks start suddenly and escalate quickly, with joint pain usually reaching its peak within 24 hours of onset. These attacks often begin to improve within 5–12 days even without treatment, although full recovery may take longer for some individuals.[22]

Chronic gout

Chronic gout develops due to ongoing inflammation that follows repeated gout attacks. It is characterised by persistent synovitis (inflammation of the synovial membrane), erosion of bone, damage to cartilage, and the formation of tophi (deposits of uric acid crystals) in tissue.[23]

Causes and risk factors

The causes of gout typically involve multiple factors, such as genetic predisposition, existing medical conditions, and dietary habits.[4] In uncommon instances, a single genetic anomaly may lead to gout, often linked with other health issues. Regardless of the specific cause, elevated levels of uric acid in the blood can lead to clinical symptoms of gout in susceptible individuals.[25]

Risk factors associated with gout and high uric acid levels include advancing age, male gender, obesity, a diet rich in purines, alcohol consumption, and genetic susceptibility. Medications such as diuretics, low-dose aspirin, ethambutol, pyrazinamide, and cyclosporine are known to potentially raise uric acid levels and contribute to the development of gout.[19] Foods that can increase uric acid levels and contribute to gout include animal products such as seafood (like shrimp and lobster), organ meats (such as liver and kidney), and red meats (like mutton and beef). Additionally, beverages such as alcohol, sweetened drinks, sodas, and those containing high-fructose corn syrup may also play a role in the development of this condition.[25]

Signs and symptoms

Gout attacks are intensely painful and typically occur suddenly, often overnight. Symptoms in the affected joints may include severe pain, redness or discoloration, stiffness, swelling, tenderness (even to light touch, such as from a bedsheet), and a sensation of warmth or intense heat in the joint.[4]

Triggers of symptoms

Factors that can trigger gout flares include consuming foods high in purines and taking medications such as furosemide. Environmental factors such as exposure to lead, particulate matter, temperature changes, and physiological stress have also been identified as triggers for gout flares.[26]

Onset of symptoms

Gout episodes often last a week or two, however, the patient may not exhibit any gout symptoms in between attacks. Nevertheless,

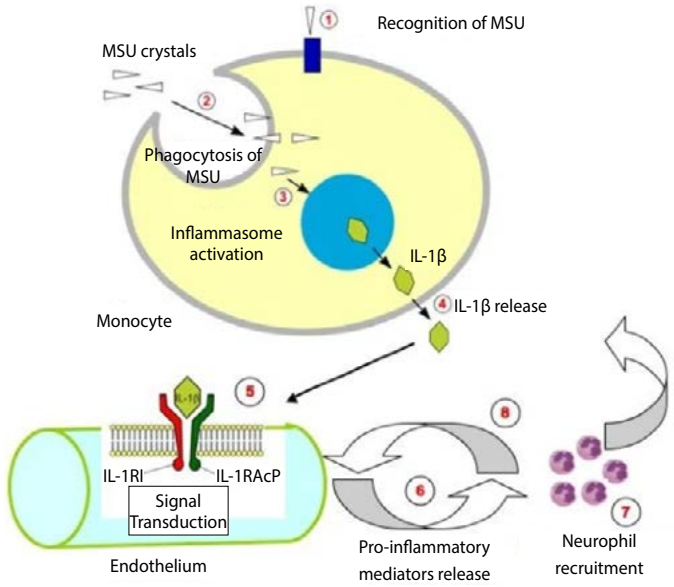

Figure 4: Inflammatory response in gout[21]

some flares continue longer than others and may result in more severe symptoms.[4]

Treatment

Non-pharmacological treatment and prevention strategies

The management of gout involves non-pharmacological measures as adjuncts to managing acute gout attacks.[27] These measures include:

1. Sufficient rest
2. Topical ice application
3. Reduce the intake of sugar-sweetened soft drinks
4. Dietary and lifestyle modifications

It is recommended that people with gout limit their consumption of red meat, fish, shellfish, and alcohol, particularly those that have additional purines such as beer, lager, and whiskey.[27] It has been widely held that diet can reduce the chance of developing gout; in particular, consuming fewer alcoholic beverages and foods high in purines, as these are linked to elevated blood urate levels.[28] A summary of foods one should eat and avoid when they have gout is shown in Figure 5.[29]

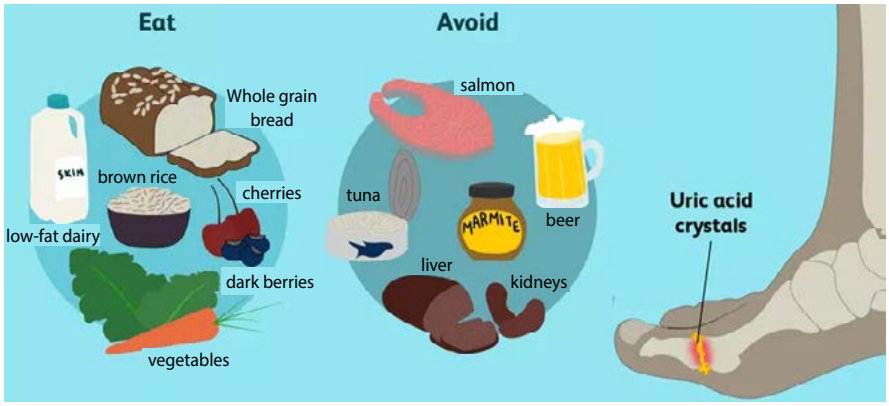

Figure 5: Foods to eat and avoid with gout[29]

Because of its uricosuric effects, which are more pronounced at greater dosages, increasing vitamin C intake above 500 mg/day reduces the incidence of gout, whereas the intake of soy protein, non-soy legumes, and fresh fruit (> 2 portions/day) is negatively correlated with the incidence of gout.[27] Therefore, these dietary and lifestyle modifications can be suggested as supplementary to ULT.[27]

Pharmacological treatment

Urate-lowering therapy (ULT), lowers blood urate levels, stops gout flare-ups, and diminishes tophi over time. ULT comprises of xanthine oxidase inhibitors (allopurinol and febuxostat), uricosuric

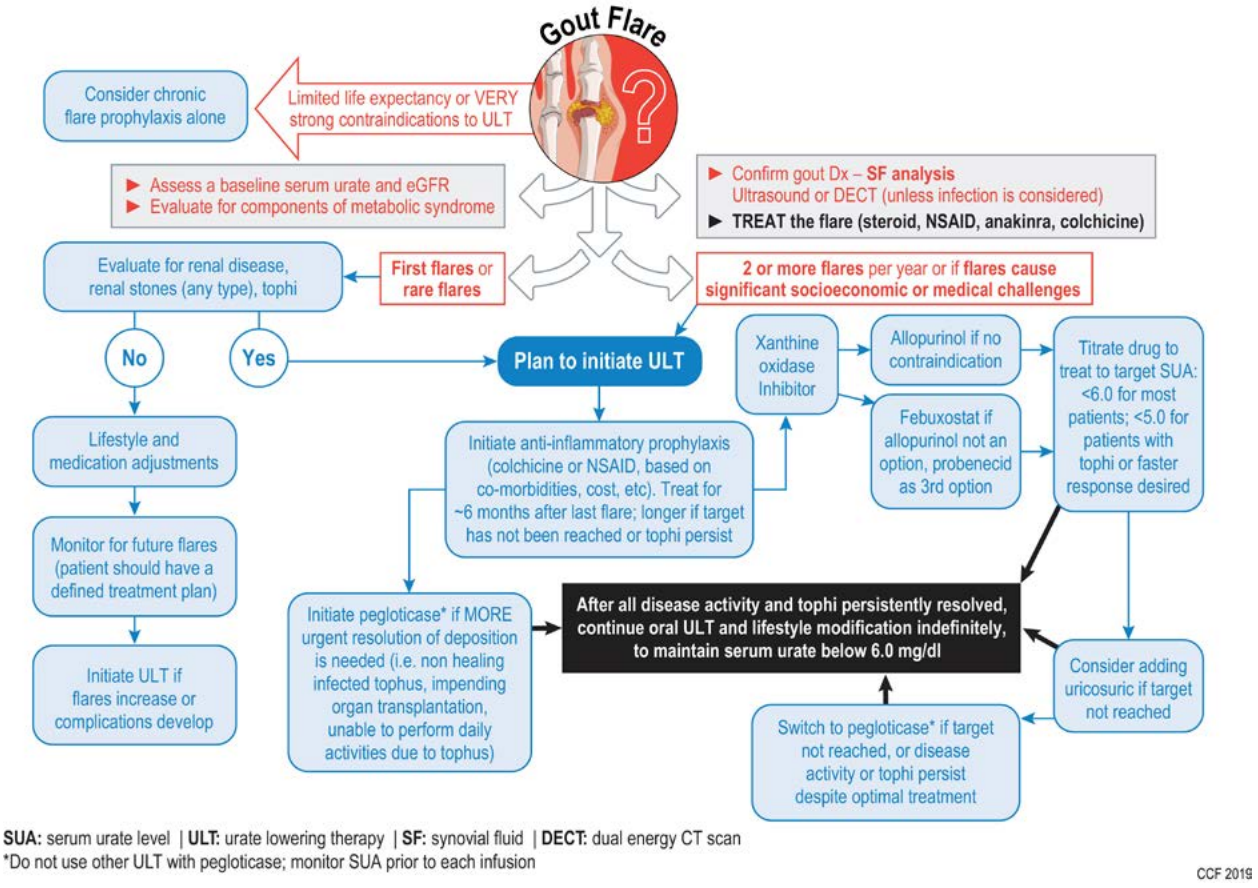

Figure 6: Management of gout: An algorithm[28]

Table II: Treatment of acute gout flares[28]

	Dosing	Duration of treatment
NSAIDs:		
Naproxen	500 mg twice daily	3–5 days
Celecoxib	400 mg twice daily	3–5 days
Indomethacin	50 mg three times a day	5 days
Ibuprofen	800 mg three times a day	5 days
Etoricoxib	120 mg daily	8 days
Corticosteroids:		
Prednisone	0.5 mg/kg or 40 mg daily	2–5 days
Colchicine	0.5–1 mg, followed by 0.5 mg two hours later. Maximum of 6 mg daily.	3 days
Anti-IL-1β biologics:		
Anakinra	100 mg daily	3–5 days
Canakinumab	150 mg SC	1 injection (t =26 days)

Table III: Treatment of established and acute gout[31,32]

	Allopurinol	Colchicine Houdé
Dosing	**Prophylactic treatment of gout and hyperuricaemia**: • 50 mg, 12 hourly; Increase dose as required up to 200–400 mg. • **Treatment of hyperuricaemia**: Initial: 200 mg, 8 hourly. Maintenance: 300–400 mg daily.	**Acute attacks of gout**: • Initial: 0.5–1 mg immediately, followed by 0.5 mg every 2 hours until pain relief is obtained or until vomiting or diarrhoea occurs. • Maximum: 6 mg for a minimum of 3 days, but preferably 7 days, should elapse between courses of gout treatment with colchicine.
Drug interactions	• **Warfarin:** increased risk of bleeding and bruising • **Azathioprine:** increased risk of bone marrow toxicity • **Theophylline:** increases effects by slowing drug metabolism. • **Enalapril (ACE-I):** increased risk for anaphylaxis(rash) and Stevens-Johnson syndrome.	• **Quinidine:** increase the effect of colchicine by affecting elimination • **Itraconazole:** increased effects with fatal side effects in kidney and hepatic dysfunction. • **Verapamil, ketoconazole, clarithromycin, erythromycin, atazanavir, ritonavir, cyclosporine:** increase effects. • **Digoxin and statins** increase the risk of toxicity of the other, rhabdomyolysis including fatality.
Contraindications	• Hypersensitivity to allopurinol or to any of the excipients • Severe renal disorder • Severe hepatic disorder • An acute gout attack • Patients who have exhibited serious adverse effects from the medicine • In children, except those with malignancy • Pregnancy • Lactation	• Hypersensitivity to colchicine or any of its excipients • Patients undergoing haemodialysis • Severe renal impairment (CrCl < 10ml/min) • Severe hepatic impairment • Blood disorders - Myelosuppression - Leukopenia - Granulocytopenia - Thrombocytopenia - Aplastic anaemia • Coadministration with P-glycoprotein inhibitors such as ciclosporin, verapamil, or quinidine in patients with renal or hepatic impairment • Coadministration with strong CYP3A4 inhibitors such as ritonavir, atazanavir, indinavir, clarithromycin, telithromycin, itraconazole, or ketoconazole in patients with renal or hepatic impairment • Pregnancy and lactation
Adverse effects	• Stevens-Johnson syndrome (rash) • Angioedema • Thrombocytopenia • Agitation • Ammonia-like breath odour • Bleeding gums • Joint or muscle pain • Bloody or black, tarry stools • Cloudy urine	• Peripheral neuritis • Neuropathy • Rhabdomyolysis • Hepatic impairment • Rash • Alopecia • Bone marrow depression with agranulocytosis • Aplastic anaemia • Thrombocytopenia • Burning, "crawling", or tingling feeling in the skin • Muscle weakness • Numbness in the fingers or toes (usually mild)

Colchicine Houdé

Colchicine 1 mg

Cipla

INDICATIONS[1]

Colchicine Houdé is for the emergency treatment of acute gout.

Fluxes in uric acid concentrations induce an inflammatory cascade that manifests as an acute gout flare[2].

Adopting a healthy lifestyle can go a long way towards reducing the frequency and severity of gout attacks[2].

S2 Reg. No. C665 (Act 101/1965) Colchicine Houdé (Tablets). Each tablet contains crystallised Colchicine 1 mg. For full prescribing information, refer to the Professional Information approved by the medicines regulatory authority.

References: 1. Professional Information approved by SAHPRA: Colchicine Houdé (Tablets). 2. Tikly, M. & Makan, K. Gouty arthritis: An approach for general practice. *S Afr Fam Pract*. 55(4): 307-312. (2013).

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agents (probenecid and lesinurad), and uricases (rasburicase and pegloticase). ULT is normally started several weeks after the resolution of a gout flare, as it is believed that commencing during a flare will exacerbate the current flare. When ULT is started the flare becomes worse, which leads to patients discontinuing treatment.[30]

Treatment of acute gout flares

Treatment with one or more potent anti-inflammatory medications is necessary for the management of acute flares. There are four categories accessible: nonsteroidal anti-inflammatory drugs (NSAIDs), corticosteroids, colchicine, and anti-IL-1β biologics. Since they are all efficient, selecting one should focus on minimising individual risks.[28]

Treatment of established gout

Urate-lowering therapy (ULT)

Guidelines published by the Rheumatologic Society support the idea that urate-lowering is essential for the treatment of established gout.[28] Allopurinol is the oldest available and most used xanthine oxidase inhibitor.[28]

Flare prophylaxis during urate lowering

Patients with gout frequently had more flare-ups during the early stages of urate reduction, most likely because of crystals being released from dissolving urate collections.[28] When feasible, prophylactic anti-inflammatory medication should be supplied to patients in addition to the initial ULT. Low doses of colchicine (0.6 mg once or twice daily) are frequently used, even if other anti-inflammatories may be appropriate for treating acute flares. This may be because colchicine is most likely to be tolerated during the three to nine months following the initial ULT, which is necessary to lower the risk of gout flares below pre-treatment levels.[28]

Conclusion

Gout is a common form of inflammatory arthritis that occurs due to a buildup of uric acid, forming urate crystals in the joints over a long period. The management involves non-pharmacological measures to prevent flareups, that include sufficient rest, reduced intake of sugar-sweetened drinks and general dietary and lifestyle modifications. ULT is essential for the treatment of established gout, with the aim to reduce flare-ups. Acute symptoms can be treated with colchicine, or in severe cases with NSAIDs in combination with glucocorticoids like prednisone.

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Feeling unbalanced? Management of vertigo and Meniere's disease

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Abstract

Vertigo is defined as a condition whereby a sensation of spinning is experienced and can be accompanied by other symptoms like feeling weak or experiencing a loss of balance. Vertigo may be induced by drugs such as non-steroidal anti-inflammatory drugs, antidepressants and antihypertensives. Other causes of vertigo can include advanced age and the presence of several diseases. There are various types of vertigo namely: acute unilateral vestibulopathy, benign paroxysmal postural vertigo, central vertigo and functional dizziness. Vertigo has multiple treatment approaches which can be divided into pharmacological and non-pharmacological treatments including lifestyle modifications, trigger management, surgery, and medical devices. In terms of the management of Meniere's disease symptoms, betahistine remains the first-line agent due to its good tolerability and efficacy.

Keywords: Vertigo, dizziness, aetiology, vestibular, BPPV, Meniere's disease

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Introduction

Vertigo is a condition of abnormal sensations of movement perceived as spinning or swaying of a person's body.[1] Vertigo is considered a subtype of dizziness, and it is characterised by a feeling of weakness, faintness, or loss of balance.[2] In a population-based cohort study conducted at University Medical Centre in Germany reported that one in five people occasionally suffers vertigo.[1] The onset of vertigo has been noted around the age of between 40 and 60 years.[3,4] Despite this, the elderly population are more affected by vertigo.[5]

This prevalence amongst the elderly could be attributed to comorbidities and high medication use.[1] It increases the risk of falls, which predisposes to morbidity and mortality.[5] Females are more vulnerable to vertigo compared to males and this is more observed between the ages 55–65 years whilst males of the age group 65 and above show a higher prevalence than females.[1] Vertigo interferes with the ability of patients to perform their normal daily activities and subsequently affects their quality of life in daily living.[6]

Pathogenesis and aetiology

Medications may precipitate vertigo, and some of the common classes include anti-inflammatories such as nonsteroidal anti-inflammatory drugs, antidepressants such as selective serotonin reuptake inhibitors, and antihypertensives such as alpha blockers.[7] The decline in the physiological function of the vestibular system due to fewer vestibular hair cells and neurons with aging, may account for the prevalence of vertigo in the elderly population.[6] Vertigo may be caused by several diseases, which may be categorised as ontological vertigo/dizziness, central vertigo/dizziness or psychogenic vertigo/dizziness.[7]

The categories of vertigo

Acute Unilateral Vestibulopathy (AUV)

Acute Unilateral Vestibulopathy (AUV) is severe, continuous, and lasts a longer period with a sudden onset due to acute damage to the vestibular nerve or the labyrinth.[8] It is characterised by a sudden onset of vertigo, nausea, vomiting, gait instability and a tendency of falling.[7] AUV resolves spontaneously in most patients, but other patients may develop residual disorders, such as chronic dizziness, disequilibrium, spatial disorientation, and reduced ability to perform daily activities.[8]

Benign Paroxysmal Postural Vertigo (BPPV)

This is the most observed type of vertigo that may manifest as persistent brief episodes of vertigo.[2] It is thought to be due to the mechanical detachment of otolithic fragments from the utricular macula and their shift into one of the semicircular canals.[7] It is a form of positional vertigo that is not from any serious central nervous system origin, and it has a good prognosis.[9] Although BPPV is benign, if undiagnosed and untreated, it may interfere with quality of life and increase the risk of falls.[9]

Central vertigo/dizziness

Central vertigo originates from diseases affecting the CNS.[10] It "extends from vestibular nuclei in medulla oblongata to the ocular motor nuclei and integration system in mesencephalon to vestibulocerebellum, thalamus and vestibular cortex in temporoparietal and the neuronal pathway".[10] This includes vestibular migraine and vascular vertigo.[7] The HINTS test (head impulse, nystagmus, test of skew) shown on Figure 2 and a structured four-step bedside diagnostic algorithm named

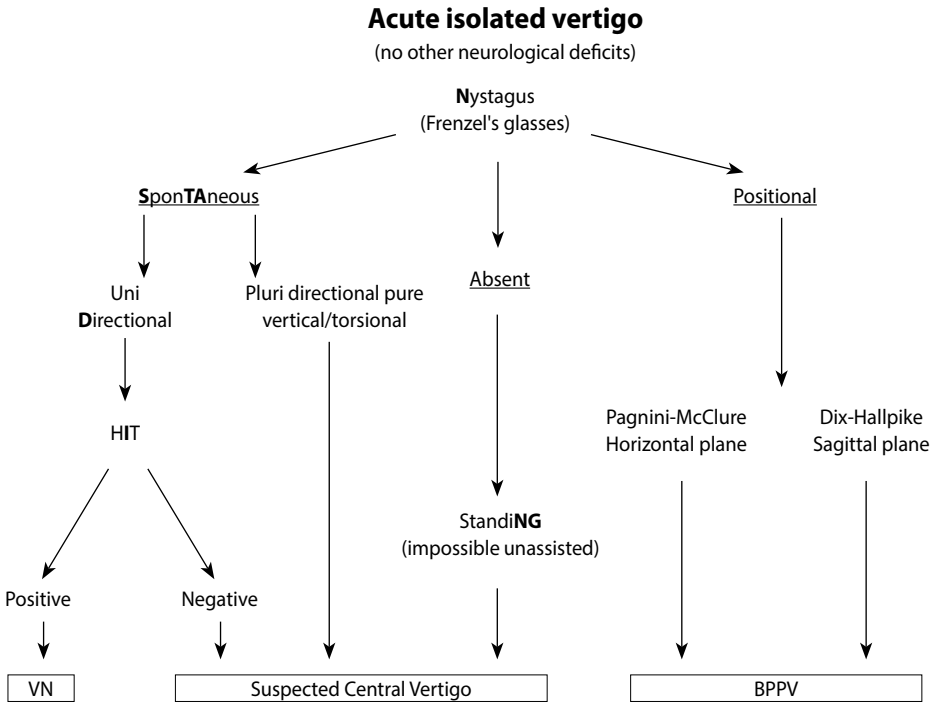


Figure 1: A diagram showing the vertigo STANDING diagnostic approach. VN-Vestibular neuronitis; HIT-head impulse test; BPPV-benign paroxysmal positional vertigo.[12]

STANDING on Figure 1 may be employed to distinguish central vertigo from differential diagnosis.[11]

Functional dizziness

It is also known as the persistent postural-perceptual dizziness (PPPD).[14] It is characterised by non-spinning vertigo and perceived unsteadiness that may be worsened when patients take upright postures and in situations with complex or moving visual stimuli.[15] The clinical presentation serves as the diagnostic tool.[7] Patients may experience chronic dizziness preceding vestibular diseases.[14]

Vertigo and Meniere's disease

Meniere's disease (MD) is a disease that affects the inner ear and is characterised by episodic vertigo, abnormal eye movement (nystagmus) with slow and fast components.[16] As per the Barany Society 2015 criteria for the diagnosis of MD, a patient must present with at least two spontaneous vertigo episodes, each lasting between twenty minutes and twelve hours for a definite diagnosis and two episodes of spontaneous vertigo episodes lasting twenty to twenty-four hours for probable MD.[16]

Special population at risk for Meniere's disease

In terms of risk factors for MD, allergies or allergic conditions like food allergies, allergic rhinitis and asthma have been implicated in some MD cases that have been reported.[17] Interestingly, a reverse correlation between allergies, MD and migraines was demonstrated as MD patients with migraines (71%) reported more allergies than those with just MD only (39%). This shows that there may be a link between allergies, MD and migraines.[17]

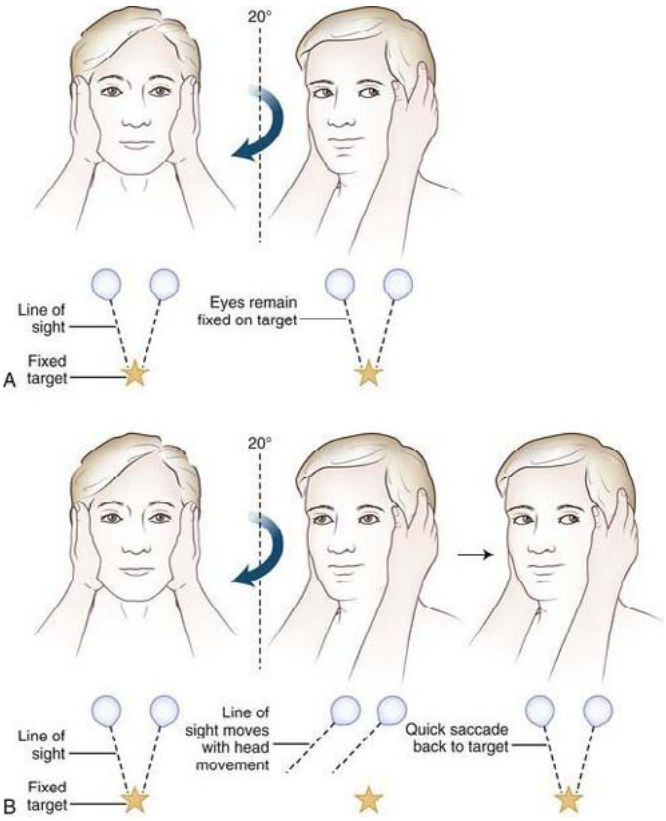
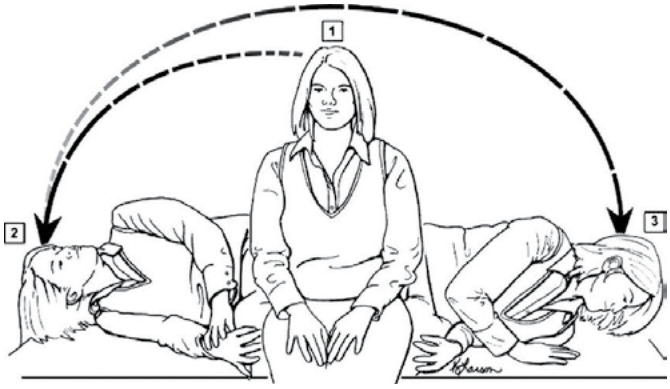


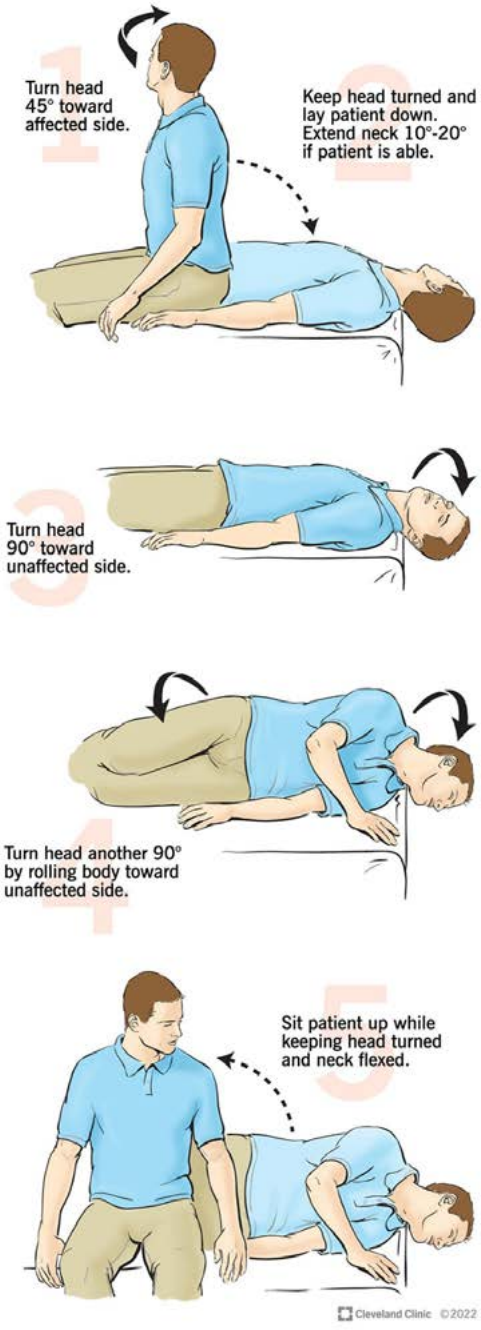
Figure 2: A diagram showing the HINTS diagnostic approach.[13]

Outline the treatments of Meniere's disease

MD has multiple approaches but all of them are aimed at controlling the vertigo experienced in MD. These approaches are divided into pharmacological and non-pharmacological treatments,



Canalith Repositioning Procedure (CRP)
Epley maneuver



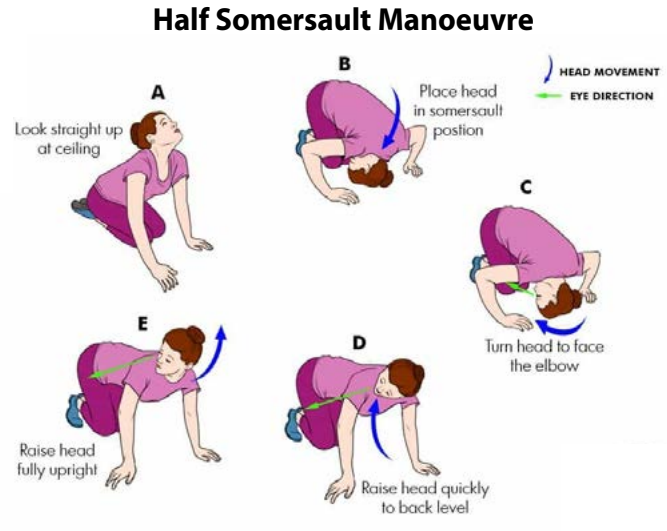


Figure 3: Repositioning Manoeuvres[30-33]

including lifestyle modifications, trigger management, surgery, medical devices and use of antivertigo drugs.[3,4,18,19] Antivertigo drugs include antihistamines like diphenhydramine, histamine analogues like betahistine, anticholinergics, benzodiazepines and diuretics, and other studies have noted improvement in MD patients with the use of steroids and intratympanic, gentamicin.[3,4,18,19]

Diuretics, like potassium sparing diuretics and hydrochlorothiazide are used owing to the mechanism of action of blocking sodium, potassium and chloride ion transporters in the kidney, which increases the release of water due to osmosis. This action normalises the pressure and volume in the endolymph, which helps decrease vertigo attacks experienced.[4,19] Betahistine dihydrochloride is the first line management of vertigo, particularly in MD and is dosed at 24–48 mg per day in two to three divided doses for this application.[18]

Diphenhydramine and other antihistamines are therapy options for vertigo whereby episodes last for a period of hours to days. For patients with MD specific symptoms like episodic vertigo, tinnitus and sensorineural hearing loss, Betahistine is used as it provides control of current symptoms when used for < 3 months and prevents future episodes when used for > 3 months.[20] Antihistamines inhibit the neuro-conduction in the vestibular nerve and nucleus via anticholinergic activity.[17] Steroids like dexamethasone (given as an intratympanic injection at a dose of 4 mg/mL) has been shown to be effective in the management of vertigo and was also found to improve tinnitus, hearing loss and fullness of the auricle. Although gentamicin is more vestibulotoxic than cochleotoxic and may also cause dizziness and unsteadiness, it is used in the management of vertigo, and it is administered as an intratympanic injection at a dose of 26.7 mg/ml.[19]

Mechanism of action of betahistine

Betahistine belongs to a class of histamines with strong antagonistic activity on histamine-3 receptors and weak agonistic activity on histamine-1 and histamine-2 receptors.[18,21] Betahistine exerts its effect in three main areas, namely the cochlea in the ear, nervous system and vestibular system. Firstly, betahistine and its metabolite, aminoethylpyridine, increases blood flow through the stria vascularis into the cochlea, while in the central nervous and vestibular system, it increases the synthesis, release, metabolism and elimination of histamine by blocking the H3 receptors, thus increasing its agonist activity on H1 receptors in the inner ear.[19,21,22] Lastly by acting on the H3 and H4 receptor, betahistine slows down the inputs going into the peripheral vestibular system.[21] By improving the circulation in the labyrinthine, it is believed to reduce Meniere's symptoms by restoring the balance between endolymph production and resorption.[21]

Safety of betahistine

Betahistine is generally well tolerated and has shown good efficacy, however, there is evidence of undesirable effects associated with its use. Patients experienced vertigo attacks, dry mouth and allergic reactions while on betahistine treatment.[23] Other adverse effects manifested as fatigue, abdominal pain, increased blood pressure and worsening of seborrheic dermatitis.[23] Other related adverse effects include headache, nausea and vomiting, dyspepsia and abdominal distension, which are usually mild to moderate and can be mitigated with dose adjustments.[24]

Non-pharmacological management:

Vertigo management does not solely involve pharmacological treatment but can include non-pharmacological approaches.[3,4,18,19] In terms of diet, this involves lowering salt intake, reducing consumption of caffeine and alcohol. Measures like trigger avoidance or management can also be used to manage vertigo. Surgical options like endolymphatic sac surgery, vestibular neurectomy and labyrinthectomy are available, although they have been associated with high rates of morbidities.[3,4,18,19] Other therapy options for the management involves the use of devices like the Menitte device.[19]

Vestibular rehabilitation has been documented as the mainstay of therapy for vertigo.[24] Vestibular rehabilitation therapy is defined as a physical therapy intended to treat and reduce symptoms caused by vestibular disorders.[25] Another solution is management with repositioning manoeuvres Figure 3 provided there is an accurate lateralisation and localisation of the involved semicircular canal.[26] The most common and performed repositioning manoeuvre is Epley manoeuvre (EM) however other therapeutic manoeuvres that aim to relieve vertigo symptoms include Semont, Brandt-Daroff and Half Somersault manoeuvres (HSM).[27,28] A study was conducted comparing therapeutic efficacy between the EM and Brandt-Daroff exercise where the two manoeuvres demonstrated an equivalent therapeutic effect in terms of improving BPPV. However, the study further reveals that neither of the manoeuvres manifested an immediate effect.[29]

In another study conducted comparing the effectiveness of EM, Semont manoeuvre and Brandt-Daroff, the results favoured the EM as it had a greater success rate.[34] A study focusing on the comparison of HSM and EM demonstrated substantial efficacy of both manoeuvres in the treatment of vertigo, however, the occurrence of residual dizziness post-treatment was higher with EM as compared to the HSM.[35] EM and Semont manoeuvre have both shown good resolution rate, however, EM produced better results in terms of post-treatment dizziness as compared to Semont manoeuvre.[36] The success rate of repositioning manoeuvres is comparable, however better outcomes are achieved when they are combined with vestibular rehabilitation exercises.[37]

Conclusion

Vertigo is classified simply as a type of dizziness, but it can negatively impact the quality of life of a patient if not adequately managed. Management may be particularly difficult, as symptoms of vertigo are often non-specific and can indicate various underlying causes. There is no superior treatment over the other as vertigo may be linked to many causes which adds to the

loss of hearing in the affected ear [1]

vomiting [1]

headaches [1]

vertigo [1]

sweating [1]

nausea [1]

loss of balance [1]

vomiting [1]

aural fullness in the affected ear [1]

tinnitus in the affected ear [1]

vertigo [1]

headaches [1]

REVIHIST 24 mg is indicated for the symptomatic treatment of **vertigo** associated with Meniere's Syndrome.[2]

Slow the dizziness

with

S3 revihist 24 mg

betahistine dihydrochloride

Usual daily dose:
24 mg to 48 mg in divided doses.[2]

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complexity to its management. This becomes more apparent in conditions like MD. Despite all the numerous treatment modalities available for the management of vertigo, betahistine remains a promising agent with good efficacy and tolerance.

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Management of post-traumatic stress disorder: a review of anxiety disorders and PTSD

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Abstract

Post-traumatic stress disorder (PTSD) and anxiety disorders are common psychiatric disorders worldwide, with a prevalence of 44.8 million cases in Africa. Their prevelance continues to increase over the years, with the major surge noticed during and after the COVID-19 pandemic. Emerging evidence indicates a strong association between anxiety disorders, including PTSD, with suicidal behaviour. Hence, they both have substantial impact on the individual and society. Thus, a comprehensive understanding of the management of these conditions is crucial. This review provides an overview of PTSD and anxiety disorders, focusing on their pharmacological and non-pharmacological management.

Keywords: Anxiety disorders, post-traumatic stress disorder, mental health, anti-anxiety treatment

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Introduction

Mental disorders are characterised by clinically significant disturbances in an individual's cognition, emotional regulation, or behaviour. In 2019, one in every eight people, or 970 million people around the world were living with a mental disorder, with anxiety and depressive disorders being the most common.[1] The anxiety disorders are often chronic or recurrent and they impair quality of life and normal functioning of an individual. They include: generalised anxiety disorder, panic disorder with or without agoraphobia, specific phobias, agoraphobia, social anxiety disorder, separation anxiety disorder and selective mutism.[2] The prevalence of anxiety disorders for the year 2019 was 301.4 million cases globally, 44.8 million cases in Africa, with 2.15 million cases in South Africa.[3]

In 2020, the number of people living with anxiety and depressive disorders rose significantly because of the COVID-19 pandemic with estimates showing 26% and 28% increase respectively for anxiety and major depressive disorders in just one year.[1,4] It was estimated that there were additional 76.2 million cases of anxiety disorders globally due to COVID-19 in 2020.[5] Social isolation, the fear of uncertainty, being terminally sick, dying from COVID-19 complications, and/or losing loved ones to the pandemic were some of the contributors to the increase in anxiety disorders, not excluding the financial stress and unemployment that the pandemic led to.[5] These resulted in an increase in the anxiety disorders that people continue to struggle with to date. In 12 African countries, the lifetime prevalence of anxiety disorders ranged from 5.7% to 15.8%, while ranging from 14.7 to 38.8 % in South Africa.[6,7] With these increasing numbers of anxiety disorders, there is a need to clearly understand the management of these conditions. Hence, this review focused on pharmacological management of anxiety disorders and post-traumatic stress disorder (PTSD) with a brief cover on non-pharmacological management.

Epidemiology

PTSD is a prevalent and complex psychiatric condition that arises in response to exposure to traumatic events, significantly impacting an individual's mental well-being.[8] Approximately 10% of people who experienced a traumatic event such as a serious accident, injury, sexual violence or threatened death events get PTSD.[9] From the countries that were affected by war during the years 1989-2019, the prevalence of PTSD was 26.5% among war survivors.[10,11] People living in sub-Saharan Africa (SSA) are disproportionately exposed to trauma and may be at increased risk for PTSD.[11] A study involving reports from ten SSA countries, including South Africa reported 22% prevalence of PTSD, that is due to domestic violence, road accidents, natural disasters, war and armed conflicts.[11] From a global study represented by 24 countries, COVID-19 survivors (15.45%), healthcare professionals (17.23%) and general population (17.3%) were reported to have experienced PTSD from the pandemic.[12] In South Africa, more women (28.5%) experience depression than men (24.4%) and more PTSD than men.[13,14]

Anxiety disorders affect an estimated 4% of the global population, encompassing approximately 301 million individuals.[3,15] This represents a more than 55% increase from 1990 to 2019, highlighting rising prevalence, incidence, and disability-adjusted life year (DALY) rates.[3] Prevalence is notably higher in high-income regions, with women being 1.66 times more likely to be affected than men.[3,16]

In South Africa, anxiety disorders were reported as the most prevalent lifetime disorders at 15.8% in a national survey conducted in 2009.[17] A more recent survey indicates that 17.8% of respondents showed probable anxiety.[18] Research in developing and underdeveloped regions remains limited, contributing to gaps in global understanding.[19]

Aetiology

The aetiology of anxiety disorders remains unclear but is likely multifactorial, involving developmental, psychological, environmental, and genetic factors.[15] Anxiety can arise without identifiable triggers or in response to environmental and social stressors in adulthood, exacerbated by medical conditions, medications, and various substances, illustrating the complex interplay of biological, psychological, and social factors.[20]

Risk factors for anxiety disorders include a family history of anxiety disorders and female sex, both of which significantly increase susceptibility.[3,15,16,21] Children with at least one parent affected by anxiety disorders face a two- to fourfold higher risk and may develop symptoms earlier in life compared to peers without familial history.[15,21]

Early-life risk factors encompass parental interactions marked by over-involvement and negativity, as well as challenging peer relationships.[21] Epidemiologically, smoking and alcohol abuse correlate with anxiety disorders, although the nature of these associations remains bidirectional, and causality is not definitively established.[21]

Environmental stressors, such as traumatic events like prolonged illness, violence, bereavement, or abuse, are commonly linked to the onset of PTSD and anxiety disorders.[22] These stressors can significantly contribute to the development and exacerbation of anxiety symptoms.

Pathophysiology

PTSD is a devastating psychiatric disorder that can strike individuals who have witnessed or experienced a traumatic event. Complex interplay between neurological, genetic and environmental factors plays a role in the pathophysiology of PTSD.[23] Studies using neuroimaging have shown changes in the brain regions of the amygdala, prefrontal cortex and hippocampus that are involved in the processing and regulation of fear. The development of PTSD has also been linked to dysregulated cortisol response caused by dysfunction in the hypothalamic-pituitary-adrenal (HPA) axis.[24] Potential susceptibility genes for stress response and neurotransmitter modulation have been found through genetic investigations. PTSD manifests itself in three ways following exposure to trauma: reliving the incident in vivid memories, dreams, flashbacks, and/or psychologic distress; avoiding triggers that could trigger the trauma's memories or experiences; and being more aroused than usual.[1-3,25]

Various pathophysiological theories exist for anxiety disorders, including the noradrenergic model, which suggests hypersensitivity of the autonomic nervous system and over-reactivity to stimuli, mediated by norepinephrine release from the locus ceruleus activating both sympathetic and parasympathetic pathways. Dysregulated neurotransmitter activity such as norepinephrine, Gamma-aminobutyric acid (GABA), serotonin (5-HT), and dopamine contributes to anxiety symptoms.[26–28]

Diagnosis

The diagnosis of PTSD and anxiety disorders involves a careful assessment of symptoms and their impact on the individual's life. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), PTSD is diagnosed when an individual has been exposed to actual or threatened death, serious injury, or sexual violence through direct experience, witnessing, or learning about an event affecting close family members or friends.[20] It's essential to exclude anxiety stemming from medical conditions or use of some substances/medications. Accurate diagnosis relies on thorough history-taking and clinical judgment due to the absence of specific laboratory tests.[20]

Anxiety disorders manifest with both psychological symptoms (e.g. excessive worry, mood changes, irritability) and physical symptoms (e.g. muscle tension, palpitations, shortness of breath).[20,21,29] Table I gives a summary of the diagnostic criteria and symptoms outlining distinctions between disorders such as generalised anxiety disorder (GAD), panic disorder (PD), social anxiety disorder (SAD), and specific phobia.[20,21,29]

Neuroimaging studies implicate brain regions like the amygdala, anterior cingulate cortex, insula, and prefrontal cortex in anxiety disorders, revealing structural abnormalities and disrupted signalling mechanisms in disorders such as GAD, PD, and PTSD.[26–28]

Diagnosis in children often involves systematic clinical interviews with parents, caregivers, and sometimes teachers. However, these standardised methods are underutilised in clinical practice due to limited clinician training, time constraints, and prioritisation of physical symptoms over psychological ones.[20]

Impact on quality of life

PTSD and anxiety disorders profoundly impact quality of life across multiple domains. Longitudinal studies consistently link anxiety and depression to declining quality of life across all age groups, with significant impacts observed in chronic conditions like chronic obstructive pulmonary disease (COPD).[30] Social anxiety disorder is particularly debilitating, leading to significant functional impairment and reduced overall well-being.[28] Generalised anxiety disorder (GAD) and depressive disorders (DD) contribute to dysfunctional thoughts that hinder goal attainment and fulfilment, resulting in substantial impairment in quality of life.[31] Individuals with anxiety disorders report significantly lower subjective perceptions of health, social relationships, occupation, and family life compared to those without such disorders.[32]

Table I: Summary of diagnostic criteria of PTSD and common anxiety disorders and their symptoms

Disorder	Diagnostic criteria	Onset and course	Psychological symptoms	Physical Symptoms
PTSD	Exposure to actual or threatened death, serious injury, or sexual violence. Presence of intrusive symptoms, avoidance, negative alterations in cognitions and mood, and marked alterations in arousal and reactivity, lasting more than one month and causing significant distress or impairment.	Symptoms typically begin within three months of the traumatic event but can have a delayed onset	Intrusive memories and distressing dreams related to the traumatic event. Flashbacks, intense distress at reminders of the trauma	Sleep disturbances, hypervigilance, exaggerated startle response, and problems with concentration. Physical reactions (e.g., sweating, increased heart rate) when reminded of the traumatic event
Generalised Anxiety Disorder (GAD)	Excessive anxiety and worry about multiple activities or events, occurring more days than not for ≥ 6 months.	Gradual onset, typically around age 21, chronic course, high comorbidity with depression	Excessive anxiety, worries difficult to control, feeling keyed up, trouble concentrating	Restlessness, fatigue, muscle tension, sleep disturbance, irritability
Panic Disorder	Recurrent panic attacks. ≥ 1 attack followed by ≥ 1 month of persistent worry about additional attacks or their consequences, or maladaptive behaviour changes.	Series of unexpected attacks, chronic course, high risk for suicide attempts	Depersonalisation, derealisation, fear of losing control or dying	Abdominal distress, chest pain, chills, dizziness, choking, nausea, palpitations, sweating, tachycardia, trembling
Social Anxiety Disorder (SAD)	Marked, persistent (≥ 6 months) fear or anxiety about social situations where they may be scrutinised. Fear of negative evaluation.	Onset in mid-teens, chronic with 20-year duration, high comorbidity with mood and substance use disorders	Fear of scrutiny, negative evaluation, immediate panic attacks	Blushing, "butterflies", diarrhoea, stumbling over words, sweating, tachycardia, trembling
Specific Phobia	Marked, persistent (≥ 6 months) fear or anxiety about a specific object or situation.	Avoidance of feared object or situation with adjustment to activity restrictions	Fear of a specific object or situation	Symptoms absent when not exposed to the feared object

Management

According to Marti et al. there is a large information treatment guideline being produced worldwide to support health professionals in clinical decision-making on PTSD and anxiety.[33] Even so, it is vital for health professionals to be able to recognise which quality guidelines can be the most trusted. The review recommended universally SSRIs followed by TCAs to be accepted as first-line pharmacological treatment of PTSD in clinical guidelines.[33,34] However, they've stated that these recommendations are not one size fit all, given examples: cost, psychotherapy may not be accessible in the rural areas, patients with comorbidities and rights on the choice of treatment.

The goals of treatment in PTSD and anxiety disorders is to:

- Provide symptomatic relief
- Shorten duration of illness
- Prevent relapse
- Improve quality of life

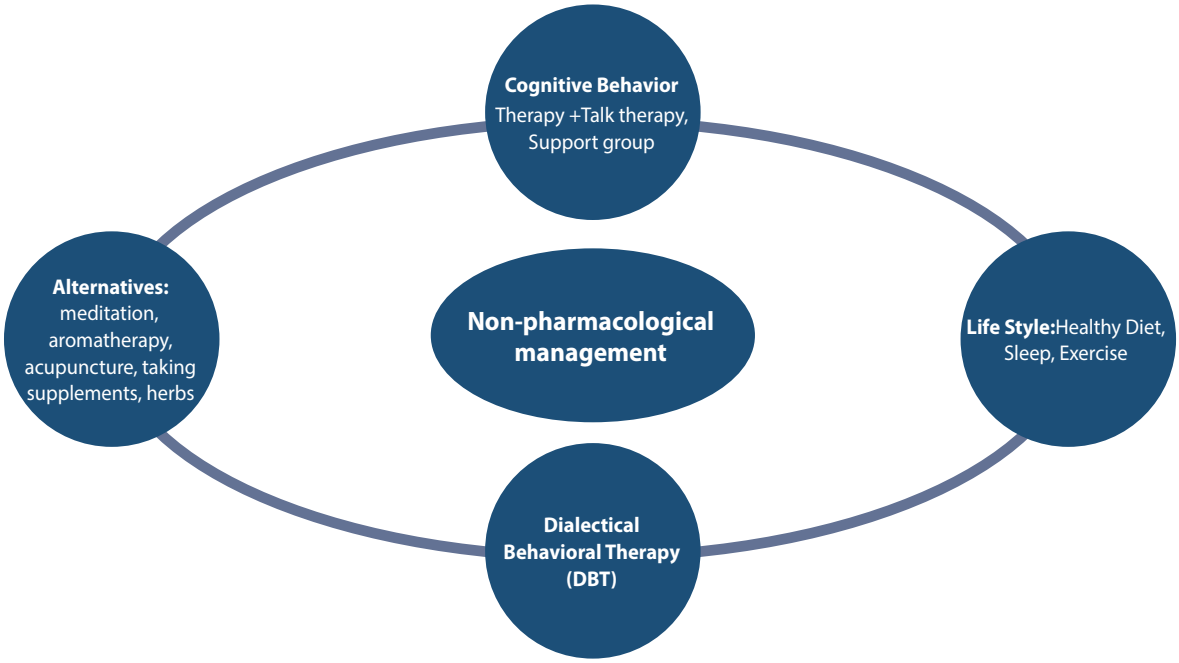

Figure 1: Non-pharmacological management of Post Traumatic Stress Disorder and Anxiety Disorders

Non-pharmacological management

Non-pharmacological interventions play a crucial role in the management of PTSD and AD. Techniques include Mindfulness-Based Therapies, Cognitive Behavioural Therapy, Eye Movement Desensitisation as well as Reprocessing, Lifestyles, Alternatives and Dialectical Behavioural Therapy (DBT). These approaches offer alternatives to medication-based treatment and provide hope for individuals seeking options for managing and recovering from conditions that significantly affect their quality of life.[35,36] The non-pharmacological treatment of PTSD and AD is illustrated in Figure 1.

Pharmacological management

There are different classes of drugs that help in the management of PTSD and anxiety disorders.

1. Selective serotonin reuptake inhibitors (SSRIs)

Selective serotonin reuptake inhibitors (SSRIs) and selective norepinephrine reuptake inhibitors (SNRIs) have been approved by various regulators around the world for PD, GAD and SAD. SSRIs and SNRIs are both first-line treatments for PD, GAD, and SAD, PTSD, and obsessive-compulsive disorder.[5,29]

The primary mechanism of this class of drugs is selective inhibition of the presynaptic serotonin transporter (SERT) pump resulting in increased concentrations of serotonin.[5]

As a class, SSRIs are considered first-line pharmacotherapy agents for anxiety disorders due to their overall levels of safety, efficacy and tolerability.[5] They are relatively safe in overdose and lack the monitoring requirements often needed with other psychotropic medications.[5]

Common adverse effects of SSRIs include gastrointestinal effects (nausea, vomiting, and changes in bowel habit), sedation, sexual dysfunction, and increased risk of bleeding.[5]

2. Serotonin-noradrenaline reuptake inhibitors (SNRIs)

SNRIs inhibit both SERT and the noradrenaline transporter (NET), increasing extracellular concentrations of serotonin and noradrenaline.[37] The adverse effect profile of both agents is broadly similar to SSRIs. Additional adverse effects seen are related to the increased noradrenergic stimulation: principally dry mouth, increased sweating, urinary retention, blurred vision, and constipation.[5]

3. Tricyclic antidepressants (TCAs)

The tricyclic antidepressants (TCAs), act primarily through SERT and NET inhibition, increasing extracellular concentrations of serotonin and noradrenaline. However, different TCAs inhibit the two transporters to differing degrees. Many TCAs have additional antagonism at α1-adrenoceptors, 5-HT2A, and 5-HT2C receptors, H1 receptors, and muscarinic acetylcholine receptors.[37] They were one of the first classes of medications used for anxiety disorders.[10,38] Despite comparable efficacy to SSRIs, they are now less frequently prescribed due to concerns about side effects including weight gain, dry mouth, sedation, urinary hesitancy or retention, arrhythmias, and risk of mortality with overdose.[38]

4. Monoamine oxidase inhibitors (MAOIs)

Monoamine oxidase inhibitors (MAOIs) are also older antidepressant medications which are now typically used only as a third-line option because of side effects and dietary restrictions. They are not FDA-approved for anxiety disorders but may be considered in patients with SAD who are non-responsive to SSRIs.[39]

Buspirone, a 5-HT1A partial agonist classified under the azapirones, is FDA- approved for use in anxiety, and is commonly used as an adjunctive treatment with SSRIs or SNRIs primarily for GAD.

5. Mixed antidepressants

Mirtazapine is the only drug within this category due to its broad pharmacological action on different receptors. It causes antagonism of the alpha-2 adrenergic receptor, postsynaptic blockade of 5-HT2 and 5-HT3 receptors, and antagonism of histamine-1 (H1) receptors. The principal adverse effects of mirtazapine are weight gain and sedation (secondary to H1 receptor antagonism), although the latter appears to be less marked at higher treatment doses.[39]

6. Gamma aminobutyric acid (GABA)

Gabapentinoids, such as gabapentin and pregabalin, are derivatives of gamma-aminobutyric acid (GABA) and demonstrate a high affinity for the α2δ subunit of voltage-gated calcium channels, disrupting their function. Several randomised control trial (RCTs) support the efficacy of pregabalin in the treatment of GAD.[40] Pregabalin is generally well tolerated with common adverse effects including drowsiness, dizziness, vertigo, and weight gain.[5]

Benzodiazepines have been a longstanding treatment for anxiety and are still among the most widely prescribed class of psychiatric medications in the world. Benzodiazepines are no longer considered first line monotherapy for PD or other anxiety disorders but can be used in the short-term on either a standing or as-needed basis for PD, GAD, and SAD in conjunction with SSRIs and SNRIs.[5]

7. Antihistamines

Hydroxyzine is the most studied antihistamine for anxiety and the only antihistamine which is FDA-approved for use in anxiety.[29] It is a histamine-1 receptor (H1) blocker that can be used as an alternative to benzodiazepines for anxiety, panic attacks, and insomnia, in both inpatient and outpatient settings.

Beyond its antihistaminic activity, hydroxyzine is also prescribed as a psychotropic medication for its tranquiliser and sedative properties, as it is a weak antagonist of the serotonin 5-HT2A, dopamine D2, and α1-adrenergic receptors.[41] The weak anti-serotonergic effects of hydroxyzine make it useful as an anxiolytic with reduced activity in certain key subcortical regions, such as the reticular formation and limbic system.

Hydroxyzine is a first-generation antihistamine, which means it crosses the blood–brain barrier easily and exerts effects on the central nervous system (which explains it sedative and anxiolytic effects). It is a piperazine derivative, chemically unrelated to phenothiazine.

Other main side effects due to the other receptors hydroxyzine works on include dry mouth, nausea, vomiting, diarrhoea, constipation, dysuria, urinary retention, increased appetite, and tachycardia.

8. Alpha- and beta-adrenergic agents

Many of the symptoms of performance anxiety, including tremor and palpitations, are brought on by an increase in the release of adrenaline and norepinephrine from the sympathetic nervous system and adrenal medulla, and medications that block adrenoceptors, such as clonidine and propranolol, minimise or eliminate these symptoms.

Stress-related norepinephrine release and compensatory downregulation of beta-adrenergic receptors in the heart and peripheral vessels appear to play a role in the physiological reactions of anxiety. In PTSD, the noradrenergic system is of key importance in modulating memory processes, and it has been found that stimulation of β-ARs facilitates the reconsolidation of emotional memory.

Clonidine is an alpha-2 adrenergic receptor agonist, FDA-approved for the treatment of hypertension.[41] It reduces the release of norepinephrine and has been suggested as a treatment for PTSD.[42]

Propranolol is a non-cardio selective beta-adrenergic antagonist that is FDA-approved for multiple indications including hypertension, angina, atrial fibrillation and arrhythmias, migraine prophylaxis, and essential tremor.[29] Although it is not approved for any psychiatric indications, propranolol is useful in lowering emotional arousal and controlling stage fright. Propranolol has been shown to interfere with memory reconsolidation.

9. Antipsychotics

Antipsychotics, most of which are dopamine-2 (D2) receptor antagonists, have been utilised on an off-label basis for multiple indications other than psychosis including anxiety. Atypical antipsychotics are effective against negative and cognitive symptoms, unlike typical antipsychotics, which are effective only against positive symptoms of schizophrenia.[5] There is currently only one antipsychotic, trifluoperazine, a first-generation antipsychotic (FGA), which is FDA-approved for the treatment of anxiety. However, it is no longer used in clinical cases.

Table II: Available PTSD and anxiety classes with examples and common adverse effects and recommended doses in South Africa.

Class of medicine	Common adverse effects	Examples
Selective Serotonin Receptor Inhibitors:	Gastrointestinal effects (nausea, vomiting, and changes in bowel habits), sedation, sexual dysfunction, and increased risk of bleeding	Fluoxetine Sertraline Citalopram Escitalopram Paroxetine Paroxetine ER Fluvoxamine
Serotonin Norepinephrine Receptor Inhibitors:	Dry mouth, increased sweating, urinary retention, blurred vision, and constipation	Duloxetine Venlafaxine (XR) Desvenlafaxine
Tricyclic Antidepressants:	Weight gain, dry mouth, sedation, urinary hesitancy or retention, arrhythmias	Clomipramine Imipramine Desipramine Nortriptyline
Mixed antidepressants:	Weight gain and sedation	Mirtazapine
GABAergic drugs:	Drowsiness, dizziness, vertigo, and weight gain	Pregabalin Gabapentin
Benzodiazepines:	Sedation, drowsiness, and mental slowing) and psychomotor impairment (including when driving)	Clonazepam Alprazolam Lorazepam Chlordiazepoxide Oxazepam
Antihistamines	Drowsiness, dry mouth, gastrointestinal upset, stomach pain	Hydroxyzine
Alpha- and Beta-adrenergic agents	Bradycardia, orthostatic hypotension, fatigue, dizziness, headaches	Propranolol
Antipsychotics	Weight gain, dizziness, hyperlipidaemia, diabetes mellitus, QTc prolongation, extrapyramidal side effects	Aripiprazole Olanzapine

There is reasonable concern about the short- and long-term risks of using antipsychotics in anxiety disorders. First, there are limited studies to date in other anxiety disorders such as SAD and PD. Second, it is unclear whether patients receive appropriate psychoeducation about the risks of tardive dyskinesia, extrapyramidal symptoms, neuroleptic malignant syndrome, weight gain, and metabolic syndrome.[12] Table II gives a summary of the available drug options in South Africa to treat PTSD and AD

Barriers to care

Barriers to accessing care for anxiety disorders are multifaceted and pervasive. Common impediments include inadequate awareness about the effectiveness of treatments, insufficient investment in mental health services, shortages of trained healthcare professionals, and enduring social stigma.[15,43] Many individuals also opt for self-management or perceive available treatments as ineffective, contributing to low treatment uptake rates.[44]

These challenges persist even in high-income countries, prompting calls for national initiatives aimed at enhancing public awareness, reducing stigma, and fostering supportive social environments to bridge the treatment gap.[15,44] Efforts to address these barriers are essential for ensuring that individuals with anxiety disorders receive timely and effective care to improve their overall well-being.

Conclusion

PTSD and anxiety disorders negatively affect the quality of life and require proper timely interventions to promote well-being. These conditions affect different biological systems, and their treatment includes combination of medicines and psychotherapy. This review highlights the importance of both pharmacological and non-pharmacological treatments in alleviating symptoms, improving functioning, preventing relapse, and enhancing the quality of life for affected individuals. Ongoing research and increased investment in mental health services are crucial to bridging the treatment gap and providing holistic care to those struggling with these debilitating disorders.

Conflict of interest

The authors declares that there are no conflicts of interest

Authors contribution

All authors drafted and reviewed the manuscript.

Ethical approval

Ethical approval was not required.

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Analysis of the impact of pharmacist initiated management of antiretroviral therapy (PIMART) on health services inputs, processes and outcomes in South Africa

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Abstract

The analysis investigates the impact of the pharmacist initiated management of antiretroviral therapy (PIMART) programme on South Africa's healthcare system. Amid challenges in meeting UNAIDS 2030 targets, particularly in antiretroviral treatment (ART) accessibility, the PIMART initiative seeks to address these issues by leveraging community pharmacists. The study adopts the Donabedian model, assessing inputs, processes, and outcomes on the quality of the programme.

Inputs highlight the potential benefits of task-sharing to pharmacists, including extended operating hours, shorter waiting times, and increased accessibility. The regulatory framework ensures pharmacist readiness through training, which aligns with the national policy of competency-based prescribing.

Processes involve a legal dispute between PIMART and private doctors, emphasising the need for collaboration and stakeholder engagement. As community pharmacists transition to patient-centred care, they offer early intervention and improved adherence through existing mechanisms. Financial implications underscore cost savings to patients, though a robust referral system is crucial for those unable to afford treatment.

Outcomes focus on the programme's ability to improve accessibility, reduce disease burden, and address medical professional shortages. Outcome measures include changes in infection rates, treatment rates, viral suppression, and mortality reduction. Quality of care is assessed through safety, efficiency, and community acceptability.

The analysis highlights the potential for PIMART to enhance human immunodeficiency virus (HIV) care, urging a careful balance between accessibility, patient safety, and continuous monitoring to ensure programme sustainability. Leveraging community pharmacists' expertise emerges as a strategic move to achieve UNAIDS targets and improve overall public health in South Africa.

Keywords: pharmacist initiated management of antiretroviral therapy, health services

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Introduction

South Africa's healthcare system faces significant challenges as it contends with an overburdened, underfunded and understaffed public sector that serves over 80% of the population.[1] This strain is particularly evident in South Africa's struggle to meet the UNAIDS 95-95-95 HIV targets. The UNAIDS 95-95-95 target is a goal set by the United Nations Programme on HIV/AIDS to achieve significant milestones in the management and control of the HIV epidemic. The targets provide a roadmap for healthcare systems to effectively address the HIV epidemic by focusing on key pillars of prevention, treatment, and care. These targets aim for:

1. **95% of people living with HIV to know their HIV status**. This target focuses on increasing the rate of HIV testing and diagnosis by implementing widespread HIV testing strategies, such as routine testing in healthcare settings, community-based testing programmes, and self-testing initiatives. It also requires addressing barriers to testing, such as stigma, discrimination, and lack of access to testing services, to reach marginalised and high-risk populations.
2. **95% of people who know their status have access to antiretroviral therapy (ART)**. This target links a positive HIV diagnosis to retention on treatment. Treatment not only improves the health outcomes and quality of life for people living with HIV but also plays a crucial role in preventing the transmission of the virus to others. By aiming for 95% of diagnosed individuals to be on ART, healthcare systems prioritise early initiation of treatment and ensure that medications are accessible, affordable, and appropriate. This target highlights the importance of strengthening healthcare infrastructure, including expanding healthcare coverage, training healthcare providers, and ensuring a consistent supply of medications.
3. **95% of people on ART to have viral suppression.** Achieving viral suppression not only benefits individual health but significantly reduces the risk of HIV transmission to others. This target emphasises the importance of adherence to treatment and regular monitoring to ensure that ART effectively supresses the virus. Healthcare systems play a critical role in supporting individuals on treatment by providing comprehensive care, including adherence support, regular viral load monitoring, and addressing barriers to medication adherence such as side-effects, mental health issues, and socioeconomic challenges.

Achieving these targets would significantly reduce the impact of HIV/AIDS by ensuring that a vast majority of those infected are aware of their status, have access to treatment, and are able to suppress the virus to prevent further transmission.

South Africa has 7.2 million people living with a known HIV status while only 75% of those diagnosed receive ART,[2,3] highlighting challenges in medication access and healthcare delivery. Following which, there is a reported 68% of people with a suppressed viral load,[2] highlighting the need for improvement in achieving the third component of the UNAIDS target.

In 2018, the South African Pharmacy Council (SAPC) and South African HIV Clinicians Society (SAHIVCS) recognised the role of community pharmacists as a potential solution in addressing these challenges through task sharing and introduced the pharmacist initiated management of antiretroviral therapy (PIMART) programme. This aligns with the World Health Organization's (WHO) Decision Framework for ART delivery by addressing the concept of differentiated service delivery as it allows pharmacists to prescribe and initiate ART and tuberculosis (TB) prophylaxis, a role primarily carried out by doctors and specialised nurses in primary care.[4,5]

In this analysis, the Donabedian three-dimensional model for assessing healthcare quality will be used to evaluate the impact of the PIMART programme in contributing to a more efficient and accessible healthcare system, aiding South Africa in overcoming its challenges and advancing towards the UNAIDS targets. The Donabedian Model, developed in the 1960s, is an influential framework used in health care for quality assessment and focuses on evaluating the inputs (structure and resources), outputs (activities), and outcomes together with the interplay between these dimensions. It is commonly used in healthcare settings for quality improvement, performance measurement and benchmarking as well as policy development and regulation.

Inputs

There is a skewed distribution of healthcare professionals across the South African health system which results in workforce shortages, hindering the health sectors' capacity to provide quality of care. The density of pharmacists in South Africa was reported as 2.7 per 10 000 in 2016, compared to 8.1 doctors per 10 000 in 2021.[6] This is below the WHO recommendation of five pharmacists per 10 000 and 10 doctors per 10 000, highlighting the need to optimise the healthcare workforce and healthcare delivery model in order to strengthen the health system in its aim to achieve universal healthcare.[7]

Community pharmacies offer extended operating hours, are open at more convenient times and over weekends, while also providing shorter waiting times compared to primary care clinics, which benefit the working class who work long hours and cannot miss a day of work to attend monthly clinic visits. Hard-to-reach populations, particularly young women, and those already seeking sexual and reproductive care in the forms of emergency contraception, pregnancy tests and contraception from pharmacies can be reached through providing care at the pharmacy level.[8] While the geographical distribution of South African communities remains unequal, there is a potential to increase the accessibility of HIV care in underserved communities by involving pharmacists in the management of HIV, particularly as 40% of independently owned pharmacies are distributed in rural communities within the poorest provinces.[8] As a consequence, the pressure on clinics can be relieved such that they can focus on other health needs of the community, particularly as the burden of non-communicable diseases in South Africa rises.

The period from completing an undergraduate degree in pharmacy to complete registration is six years, which is a notably shorter period than the nine-year trajectory experienced by doctors. The quicker professional path for pharmacists, together with the reduced fees and waiting time required to access pharmacy services makes task sharing from doctors to pharmacist evident. The regulatory framework set out by the SAPC defines the scope of practice of a pharmacist who is PIMART-ready.[9] It outlines a clear distribution of responsibilities which include testing, prevention of HIV through PrEP (pre-exposure prophylaxis), PEP (post-exposure prophylaxis), treatment and management of TB/HIV co-infections. To support pharmacists in building capacity and ensuring patient safety, pharmacists are required to undergo an additional training course set out by specialists at SAHIVCS, together with obtaining a licensing permit from the National Department of Health to allow the prescribing of ART.[10] This is in line with South Africa's National Drug Policy of 1996 and the ideals of task shifting, which states that "At primary level, prescribing will be competency, not occupational based".[10] Limitations to the scope of practice and referral system to a clinic or doctor are also clearly defined in this framework. While additional training and licensure may be considered as barriers of entry to the programme, these prerequisites are essential elements to ensure a high quality of care is provided and ensures that patient safety remains at the core of the service.

Processes

PIMART is widely accepted by HIV advocacy groups, specialist groups and the Department of Health but lacks widespread approval from doctors, which has led to a legal dispute.[11] An association of private doctors contested the implementation of PIMART, arguing that the services provided by the programme encroach on their domain and questioned the competency of pharmacists.[11] Despite this, a court ruling in August 2023 favoured PIMART and emphasised the need for a collaborative approach to task-sharing. The legal dispute resulted in a two-year delay in the implementation of PIMART and highlights that, while tensions between healthcare professionals are common, key stakeholder engagement is pivotal in the restructuring and transformation of roles, to encourage collaborations and avoid delays in the progression of the health system. Care that falls outside of first-line treatment requires professional judgement of the pharmacist and a referral system to a doctor, highlighting that the success of

the programme relies on efficient and effective communication and collaboration between disciplines. Furthermore, the success of the programme relies on the trust of the public which can be influenced by other healthcare professionals.

Community pharmacists have transitioned to a more patient-centred care role as they serve as the first point of contact for health care by offering routine services, advice and over-the-counter medications which is crucial when analysing the staff-user interaction in HIV management. Pharmacies are a common place to seek sexual and reproductive health advice, particularly when accessing emergency contraception, a signal of HIV risk, and the need for PEP or PrEP can be assessed at the point of contact, further bridging the gap between the need felt by patients when seeking health advice, and a normative need.[8] Streamlining care at the point of contact can result in early intervention and ensure that patients are not lost to follow-up.

The ability for pharmacists to monitor adherence is enhanced through mechanisms already in place such as prescription reminders and faster medication collection processes which can improve the staff-user interaction as patients are supported with their treatment plans and are encouraged to retain in HIV care which will ultimately improve viral suppression, a key UNAID target.[12,13]

When analysing the financial implications of the PIMART programme, there is a notable cost saving to patients as the cost of visiting a pharmacy is significantly less than a consultation with a doctor. However, HIV care in the public sector is free, therefore a clear and robust referral system is essential for those unable to afford treatment. To address the inequality faced by this payment mechanism, government may need to introduce a reimbursement model to compensate pharmacists and alleviate patient costs. Private insurance must be encouraged to include pharmacists as designated providers for HIV care and reduce co-payments to further encourage accessibility of treatment. Granting early and improved access to treatment is cost-effective for the health system resulting in increased efficiency of healthcare resources and a reduced overall cost of healthcare despite the initial increase in cost as accessibility is expanded.

Outcomes and evaluating quality of care

Task-sharing to pharmacists can improve the accessibility of HIV treatment and relieve the burden of disease placed on the health system whilst addressing the shortage of medical professionals. Reducing the delays in treatment through task shifting is in line with the test-and-treat approach which is critical in reducing the progression of HIV and improving the overall health of the population.

Outcome measures such as changes in HIV infection rates, treatment rates (particularly pharmacist managed ART) and viral suppression rates are distinct measures to analyse the success of the PIMART programme. Additionally, measuring reductions in mortality and morbidity related to HIV are important in assessing the strength of the programme.

To evaluate the quality of care provided through task-sharing, patient safety, efficiency and acceptability within the community must be measured. Pharmacist prescribing patterns will be governed by evidence-based approaches outlined by the SAHIVCS in the form of standard treatment guidelines.[9] The adherence to guidelines will be reinforced through continuous professional development and site visits, which, while inconvenient, fosters a close alliance with infectious disease specialists and ensures pharmacists remain up to date with advancements in care. It would be valuable to assess the geographical distribution of pharmacist-managed ART to determine changes in healthcare utilisation rates and assess the effectiveness of encouraging pharmacies to operate in hard-to-reach areas.

While safety outcomes such as improved adherence and management of side-effects are anticipated through the programme, the potential for medication errors requires vigilant monitoring and minimisation efforts by pharmacists to maintain high standards of care. Monitoring medication supply will also indicate the sustainability of the PIMART programme.

Efficiency of the referrals system needs to be closely monitored to ensure timely and effective referrals. Patient satisfaction surveys need to be conducted to gauge patient acceptance of pharmacists in the provision of ART and ensuring sufficient support and empathy is provided.

Limitations and the future

Pharmacist-initiated care has a rich history, with established programmes like the primary care drug therapy (PCDT) paving the way for innovative approaches to enhancing access to essential medications. The PIMART programme can be seen as a natural extension of the PCDT, aimed at broadening access to essential medications, including ART. While similar initiatives are being implemented globally, most studies have focused on ART refills at the community pharmacy level or on PrEP initiation.[14-17] Acceptability studies conducted in South Africa and Botswana shed light on ART patients' receptiveness to pharmacy-delivered ART refills, highlighting the convenience and efficiency of such services compared to clinic-based alternatives.[16] Economic evaluations, such as those carried out in Canada on pharmacist prescribing programmes, emphasise the potential for cost savings within healthcare delivery systems, presenting an area for further research.[18] As these models progress, the establishment of robust frameworks for sustainable public-private partnerships will be paramount in effectively navigating the complexities inherent in pharmacy-based ART services, ensuring their long-term viability and efficacy in meeting the needs of patients.

Conclusion

The PIMART programme represents a multifaceted approach to addressing the UNAIDS targets in South Africa. By harnessing the expertise of community pharmacists in patient care management and expanding the provision of ART, the programme has the potential to significantly improve accessibility to HIV treatment,

alleviate the burden on the healthcare system, and enhance patient outcomes.

Regarding the first target, achieving 95% of people living with HIV knowing their status, the PIMART programme plays a pivotal role in increasing the rate of testing. By addressing barriers such as stigma, discrimination, and limited access to testing services, particularly among marginalised and high-risk populations, the programme can contribute to a more comprehensive and inclusive approach to HIV testing.

For the second target, ensuring that 95% of individuals who know their HIV status have access to ART, the PIMART programme's efforts to strengthen the healthcare system are crucial. Through expanding healthcare coverage, providing training to healthcare providers, and ensuring a consistent supply of medications, the programme can help ensure that patients are effectively linked to care and retained in treatment programmes.

Finally, the third target, achieving viral suppression in 95% of people on ART, emphasises the importance of adherence to treatment and regular monitoring. Here, the PIMART programme provides essential support to individuals on treatment, including adherence counselling, viral load monitoring, and addressing barriers to medication adherence. By prioritising comprehensive care and addressing the broader socio-economic challenges faced by patients, the programme can contribute to improving viral suppression rates and overall health outcomes.

In conclusion, the PIMART programme offers a nuanced and comprehensive approach to addressing the UNAIDS targets in South Africa. By leveraging community pharmacists' expertise, expanding access to ART, and strengthening healthcare systems, the programme has the potential to drive significant progress towards ending the HIV/AIDS epidemic in the region.

Conflict of interest

The author declares no conflict of interest.

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The South African Association of Hospital and Institutional Pharmacists (SAAHIP) 37th Annual Conference and 68th Annual General Meeting (AGM) to be held on the 10–13 April 2025 presents

"Future Ready 5.0"

Empowering Hospital Pharmacists for Tomorrow's Healthcare Revolution

Call for Abstracts

The South African Association of Hospital and Institutional Pharmacists Southern Gauteng branch is excited to announce a call for abstracts for our upcoming conference focused on exploring the intersection of hospital and institutional pharmacy and the fifth industrial revolution during the implementation of the NHI bill in South Africa. As the healthcare landscape evolves rapidly, propelled by advancements in technology and innovation, it is crucial to understand how these changes will shape the future of pharmacy practice within not only the hospital pharmacy setting, but within the broader pharmacy landscape. This conference aims to explore the dynamic landscape of healthcare in the midst of the fifth industrial revolution and equip hospital pharmacists with the knowledge and tools necessary to thrive in this transformative era.

Background

We are currently in the 4th Industrial Revolution where advances in technology affect the way we work, play, and think. But how are these innovations in technology affecting the field of hospital pharmacy and are we keeping up with it or is it merely passing us by? What is the future of pharmacy in the age of technology and innovation? This is an opportunity for us as pharmacists to display our efforts within our workplace in keeping up with technology and innovation.

The Fifth industrial revolution will be upon us soon. It is often referred to as the "Cognitive Age" and is a transformational point in history. We need to redefine our human existence. This is the era where we harmonise machine intelligence and human interaction for the improvement of humanity. Let us display the human interactions that pharmacists provide as we harmonise with technology. "5.0" in our theme topic directly refers to the Fifth industrial revolution.

National Health Insurance

On the 15th May 2024, President Cyril Ramaphosa signed the National Health Insurance Bill into law. What does this mean for hospital pharmacy? The transformation of the healthcare system through the utilisation of AI and big data must incorporate concepts of sustainability, human-centeredness, multi-disciplinary collaboration, patient-centeredness and "resilience". At this pivotal stage, hospital pharmacy must lay the foundation to cement their essential roles. This conference will provide a platform to discuss the implications of the impending national health insurance for pharmacy practice in South Africa and to envision the role of hospital pharmacists in this reformed healthcare system.

Being a pharmacist in this new age means being adaptable. As AI takes over specific tasks, there is a growing need for intrinsically human skills, emotional intelligence, critical thinking, creativity, and collaboration will be more crucial than ever. Together, they create a synergy that optimizes healthcare outcomes while upholding the human touch in pharmaceutical care. Ensuring that AI's deployment is beneficial and ethical is a collective responsibility. From developers to policymakers, educators to end-users, we all play a role in shaping the trajectory of AI's impact on healthcare.

Hospital pharmacists, as integral members of the healthcare team, play a crucial role in navigating this revolution and ensuring optimal patient care amidst rapid changes.

We invite and encourage abstract submissions from all practising hospital and institutional pharmacists, community service pharmacists, pharmacist interns and academics. We also invite researchers, clinicians, pharmacists, educators, and other healthcare professionals to contribute their insights and expertise to this important discussion on the future of hospital pharmacy in the era of the fifth industrial revolution. Together, let us explore innovative solutions and best practices to ensure optimal patient care and pharmacy practice excellence.

Categories for submission of abstracts

Precision Medicine and Personalized Therapies: How will the integration of genomics, big data analytics, and artificial intelligence

impact the development and administration of personalised treatments in hospital pharmacy?

Digital Health Solutions: Explore the role of digital health technologies, such as telepharmacy, mobile applications, and electronic health records, in optimizing medication management, patient monitoring, healthcare delivery in hospitals and handling of medicine shortages.

Pharmacy Automation and Robotics: Investigate the implementation of automation, robotics, and smart systems in pharmacy operations, including medication dispensing, inventory management, and compounding, and their potential to enhance efficiency and patient safety.

Advanced Drug Delivery Systems: Discuss emerging drug delivery technologies, such as nanomedicine, implantable devices, and targeted drug delivery systems, and their implications for hospital pharmacy practice in terms of drug formulation, administration, and patient care.

Ethical and Regulatory Considerations: Examine the ethical, legal, and regulatory challenges associated with the adoption of fifth industrial revolution technologies in hospital pharmacy, including data privacy, security, and compliance with industry standards and guidelines.

NHI Readiness: Current and future strategies to navigate National Health Insurance in a South African context.

Data Analytics and Predictive Modeling: Discuss how data analytics and predictive modeling can enhance medication management and patient outcomes.

Telepharmacy and Remote Patient Monitoring: Delve into the opportunities and challenges of telepharmacy and remote patient monitoring in the era of virtual healthcare.

Patient-Centered Care: Highlight strategies for delivering patient-centered care in an increasingly complex healthcare landscape.

The above is by no means an exclusive list. Other topics may be worthy of presentation.

Presentation categories

Using the following categories, determine the most appropriate format for your presentation:

• ***Podium presentations***: A formal 10-minute oral presentation. A further five minutes will be allowed for discussion and to receive questions from the audience. A podium presentation is generally a structured research project with aims, methods, results and conclusions.

• ***Scenario presentations***: A formal 10-minute oral presentation. A further five minutes will be allowed for discussion and to receive questions from the audience. A scenario could involve an in-depth study of a specific real-world event or a particular problem that was encountered and solved in a clinical or practice-related environment. Scenario presentations should illustrate a good understanding of why the event happened or why the problem occurred. Presentations should highlight the concerns that arise from a scenario (that requires further investigation) and how the problem can be solved.

• ***Pearl Presentations***: A short five-minute oral presentation. "Pearls" are a fun-filled way of presenting a serious topic, but with a different slant. Just as a pearl has an intrinsic value, these presentations should focus on something exceptional, precious and not well known generally. The presentation should convey a useful, punchy message that has not been widely published or taught. The ideas could be from any practice setting, e.g. clinical, administrative, pharmaceutical care or quality improvement. Although both a title and an abstract will need to be submitted for the selection process, only the title will be published in the conference programme. This is to preserve the essence of a pearl presentation. No discussion will take place. Questions will not be invited from the audience.

• ***Poster Presentations***: A visual display that facilitates discussion. A poster could be research, a case study or a real-life event as outlined in the scenario presentations above. Presenters can display their posters for three days and deliver a formal 2-3 minute talk to the full audience during the scheduled poster session. Discussion and questions from the audience will take place at the poster during the subsequent tea or lunch break.

Awards

The following awards will be presented:

- Best podium presentation by a practising hospital or institutional pharmacist
- Best poster presentation by practising hospital or institutional pharmacist
- Best scenario presentation by a practising hospital institutional pharmacist
- Best presentation by an academic pharmacist
- Best pearl presentation

Only paid-up SAAHIP members will qualify for awards. Award winners from the previous two conferences and members of the judging panel will not be eligible for an award.

Abstract submission guidelines

Abstracts that do not comply with the following criteria will not be considered for acceptance:

All abstracts will be reviewed by an abstract committee. The accepted abstracts will be assigned to appropriate poster-, oral-, or scenario sessions. A notification will be emailed to every corresponding author. Authors who then wish to present their abstract at the conference must sent back the signed acceptance document and pay the registration fee. No honorarium, travel-, or accommodation expenses will be provided or covered for presenters.

Layout for *ALL* abstract submissions:

Abstract must be saved as a MS word document (***Not PDF***)

Font: Arial, regular font, size 10

Spacing: Leave a blank line between the main sections of the abstract, otherwise use single line spacing. ***Do not*** indent the start of a paragraph. Use full justification for text alignment.

Title: Use bold font and centre the title, the title should be brief and clearly indicate the topic of the presentation. Capitalise the first letter of each word as appropriate. Try to avoid the use of "a", "an", or "the" as the first word of the title.

Authors and Affiliations: Use normal font and centre the text. Type the authors surname first, followed by the initials. Underline the presenting author. ***Do not*** include titles or degrees. Only include the place of employment or institutional affiliation.

Body of Abstract: The abstract ***should not exceed 350 words*** (word count excludes title, authors, affiliations, spaces, title notes). Avoid using tables, graphs or graphics in the abstract

Abstracts for poster - and podium presentations should be structured in the following format

Background:

Methods:

Results:

Conclusion:

Abstracts for scenario presentations should be structured in the following format:

Setting / Background:

Purpose of the project / Objectives / Description of case/event:

Approach used:

Results / Outcome of case/event:

Lessons learnt / Key learning points:

Abstracts can be submitted electronically by following the link: https://forms.gle/neZqAe6g9CvyEAXV7

For more information, you can send an email to: liezl.fourie14@gmail.com

Important dates

Abstract submission deadline: 30th September 2024

Notification of acceptance or rejection from the Academic Committee: 15th November 2024

Success story of young pharmacists

These success stories are hosted by Mr Kesentseng Jackson Mahlaba, who is a pharmacist and a lecturer. He is a health advocate in vaccine hesitancy, medicine management and rational medicines use in order to improve access to and adherence to medicines by patients and communities at large. He is the current Chairperson of the North Gauteng branch of the South African Association of Hospital and Institutional Pharmacists and a scientific advisor to the South African Vaccination and Immunisation Centre at Sefako Makgatho Health Sciences University.

If you want to be hosted to share your success story as a vibrant young pharmacist who has less than 5 years' experience post their internship, please email Kesentseng at kesentseng.mahlaba@smu.ac.za.

Meet Nicholas Magongwa

Introduce yourself to the readers of SAPJ so that they have a broader understanding of your journey to this point.

My name is Nicholas Magongwa. I was born and bred in a small village in Limpopo called Calspruit in Kamagongwa, part of my name. That's it about me, I was raised by a very strong and powerful woman. That's my background.

Where did you study pharmacy, and what made you choose pharmacy as a career choice?

I studied pharmacy (BPharm) at Sefako Makgatho Health Sciences University (SMU). Then, our BPharm programme was a merger between the University of Limpopo, Medunsa campus, before they changed to SMU, and Tshwane University of Technology. Upon completion of my undergraduate degree, I immediately commenced with my Master of Pharmacy in Clinical Pharmacy at SMU.

Why pharmacy? That's a good question, I was asked the same question during an interview before I started pharmacy. I was always curious regarding how medication works, that is, how absorption in the human body takes place and their overall mechanism of action. These are also the common questions that a lot of people ask. For me, that curiosity in me resulted in me doing a self-reflection to assess if I thought I had the skills and abilities to be a healthcare professional (pharmacist). During this self-reflection period, I had the opportunity to volunteer at a provincial hospital in Limpopo where I was exposed to what pharmacists do on daily basis, this really fascinated me. The passion grew from there on as I was then convinced that pharmacy is the right direction I should take.

Most, if not all students, experience obstacles during their study period. What were some of those obstacles for you and how did you go about overcoming them?

Financial support was my biggest obstacle when I got to university. Fortunately, early in the year I heard about a merit bursary which I qualified for. This bursary is awarded to first year students who are studying towards their first degree after Grade 12 who have an average mark of 70% or higher overall for six subjects (excluding Life Orientation) in Grade 12 final examination. I was fortunate as I had five distinctions in my matric. This bursary alleviated most of my financial anxieties in my first year.

My second obstacle was adjusting moving from my village into university life, especially because I was the first in my family to go to university. Early on, I did not have a mentor to guide me through university lifestyle, academics and everything else in between. Again, I was fortunate to meet a group of young, dedicated students in my class that later became my structure. Most of whom actually went on to get postgraduate qualifications after BPharm. We guided each other not to fall into wrong crowds, always had a clear scheduled plan that kept our aim in front of us.

They say: If you want to go fast, go alone but if you want to go far, go together. During your time at university, who were some of the people who 'walked with you' to get you to the point of graduation?

I would like to highlight that the university had a very good supportive structure. In the School of Pharmacy, we had a lecturer called Dr Lindi Zikalala Mabope, she is the Senior Academic Support Co-ordinator for the school. She tracked all students progress and intervened where she saw potential risks in a student that might affect their academics. Her motto was, "no one gets left behind", little did I know, that would be the motto that I live by till today. This also inspired me and my very close-knit group of friends to become mentors and ensure that no one got left behind.

Coming from an academic environment, how did you experience internship at first and were you able to see how the BPharm degree prepared you for the practice setting?

When I finished my BPharm I knew that I was going to do an academic internship towards clinical pharmacy. This was extremely challenging for me; I would vouch that the programme I did is one of the most

challenging degrees out there, although the two years just flew by. The programme really propelled my career in ways I had not imagined.

With regards to being ready for the working environment, I have the structure of the BPharm programme in the school of pharmacy at SMU to thank. We did a problem-based learning approach which enforced teamwork, collaboration and self-sufficiency. We had to think outside the box, research information, and do a lot of application. Post my internship, I found myself collaborating a lot with other health disciplines institutions. I feel like I can be placed in any industry in pharmacy and within a few weeks I would have adapted.

Since completion of internship, how did you advance through the pharmacy profession to this point? What posts and positions followed?

I completed my two years academic internship (MPharm) in record time with a distinction. I then did my community service in one of the leading Korean companies in the country. Post my community service (during the COVID times), I was employed at a public hospital in Port Elizabeth where I started applying my clinical pharmacy, mostly in the intensive and critical care units and COVID units where I would advise the healthcare team regarding individual patient medication use and review.

From there, I moved on to my current employment where I am appointed as a Pharmacy Networks Manager in a company that is a subcontractor for the biggest closed medical aid in Southern Africa to manage their pharmacy network. My department manages roughly 3 000 pharmacies and close to two million beneficiaries.

How do your current daily duties and responsibilities compare to what you envisioned a pharmacist doing when you selected pharmacy as a career path?

Let me start off by saying I planned early on to explore most of the sectors in pharmacy in order to assist me with choosing one that I could be comfortable with and can gain maximum growth for my carrier. Ultimately, I knew I wanted to address health issues at a macro level and maybe even influence policy. Studying clinical pharmacy was a good starting point, as part of my qualification enables me to input on matters such as the Essential Medicine Lists.

So now in my current daily duties and/or responsibilities I drive preventative health in the form of improving or enabling health screening for a number of conditions e.g. diabetes, hypertension, HIV testing. This is achieved through collaboration with various pharmacies and government offices through whom we promote these services that most of them then offer to patients/customers.

Our efforts assisted us in increasing the uptake (screening) by over 200% from where I found it. That is from the number of members that are on our chronic programme, that we want to see going for preventative health care. This approach helps us control, maintain and reduce deterioration of diseases by providing early diagnosis of disease and in the long term, eases the financial burden on the health system. So, as far as my academic training, it excites me to be doing what I studied from undergrad to my post grad.

How would you define 'success'?

I know this might sound clichéd, but success for me is not materialistic, my definition is actually quite simple, it is how many people you can take up with you or can be successful through one's interventions. While materials are a nice to have, that is not what I saw when I was exposed to pharmacy before my university years but rather patient care. In any case, I did not see a lot of doctors, pharmacists and lawyers growing up. So, routed in my definition is inspiring others, whether it is one or two people, that is good enough.

How does your definition of success align or differ from the world's or South Africa's perception of success?

I think most people measure success based on individuals perceived financial standing in the society. The problem with this is that in most instances, measuring success based on one's wealth results in a shallow version of success, one that lacks compassion and kindness. I think we can all agree that money might make you comfortable, but if you cannot inspire other people, we end up with a society of people who cannot even sustain themselves and most fall in to a culture of dependency.

Tell us what makes your story a success story, from which readers can tap inspiration from.

My story is that of many South Africans, humble beginnings (having very little inspiration and few people to look up to) to (to glory in my eyes) leading a pharmacy network for the biggest medical scheme in Southern Africa. A cherry on top for me is managing to pull people with me along the way. I currently have a number of people that I mentor, so what makes my success story for me is not keeping my "success" to myself, but allowing it to enable others.

Which elements do you think one needs to impact your environment, whether your community, profession, or workplace? Do you believe you have made an impact in pharmacy to-date?

I think I have made an impact in pharmacy. The field that I am in is very small overall in health and has proven to be illusive for certain races. This has resulted in unequitable societies as most high-level decisions taken are without individuals who are or have been affected by the issues on the table making it hard to tailor interventions. With regards to impacting our environment positively, we need to continue to advocate for the growth of deserving individuals and enable them to become better pharmacists. Pharmacists need to start being fearless and push boundaries.

What is the ONE thing every reader can contribute to make pharmacy a better profession or more valued by our patients?

Technology!!! There is one thing I have always been critical of, we (institutions of higher learning, individuals, organisations) need to teach people things that are current as the world is shifting in multiple direction. We are in the fourth industrial revolution, I am even hearing talks of fifth industrial revolution, where the shift is towards technology. It is sad that most pharmacists/pharmacies have not embraced or incorporated technology. Such a move will help

us tremendously in addressing issues of fraud, waste and abuse of systems or services.

We need to make sure that we provide patient-centric healthcare by increasing our collaborations with other healthcare professionals. Also, we (you and I who make up the PSSA) need to advocate for pharmacists and ensure we secure posts at market related packages and also be accountable ourselves towards each other. During my university days I was fortunate to be involved in student organisations e.g. the Sefako Makgatho University Association for Pharmacy Students, the Tshwane University of Technology Association of Pharmacy Students (TUTAPS) and the South African Pharmaceutical Students Federation (SAPSF) to mention a few. My five cents! Pharmacy personnel should be active in pharmacy organisations and sectors. They help you to network, navigate through the field and exposes you to crucial information.

How would you like to be remembered one day?

I've said this throughout, and I maintain the same stance, I want to be remembered as someone who has inspired people to become better versions of themselves. Whether it's through bettering their health or their background. I want to be remembered as that person that helped people that needed help. That's what I want my legacy to be. Remember! People remember interactions they had with you, hence, let us be compassionate and kind to each other and make sure we inspire someone through our actions.

Who am I as a pharmacist in 2024?

Byron Chukwu

SAAPI

As a pharmacist in industry, I have a different role to play in patient care. My responsibility is ensuring the safety, efficacy and quality of pharmaceuticals from their inception (development of pharmaceuticals) to the finished product.

My experience in the pharmaceutical industry started off on a six-month contract, where I was employed as a Production Pharmacist at one of the manufacturing plants in Cape Town. During this time, I was responsible for ensuring that the raw materials used in manufacturing were of good quality. It was also imperative that I ensured that quality was maintained throughout the entire manufacturing process.

In my current role within the regulatory space, my duties entail (not limited to) the following:

- Evaluating dossiers prior to submission for safety, quality and efficacy. This is done by working with the research and development team to ensure that the product meets all requirements and is suitable for use in our population.
- Maintaining the approved dossier as manufacturing processes could change or new side effects may arise with time. All changes to the dossier are communicated and approved by authority to ensure that the safety, efficacy and quality of pharmaceuticals is maintained.

Personal Experience: My transition from a predominantly dispensing role to one that covers the development to registration of a product has been both challenging and rewarding. Working in the pharmaceutical industry has enriched my practice experience immensely.

Challenges: Adapting to the regulatory role has come with its challenges, including time constraints and the need for additional training to keep abreast of the latest regulatory requirements and standards, and understand the regulatory environment better. Balancing training with work responsibilities can also be demanding.

Growth Opportunities: Embracing rapid changes in the regulatory and pharmaceutical industry environment opens doors for professional growth and development. Continuing education in areas such as drug-development, quality assurance, pharmacovigilance and regulatory enhances competence and confidence in maintaining and registering high standards of pharmaceutical products.

With the pharmacy workforce being saturated I have had to exhibit what makes me different, what makes me unique. These days everybody has a pharmacy degree; some even have a master's degree, and everybody is doing the same short courses. So, the question that I normally ask myself is: "what makes you more employable than the next person?" One answer for sure is embracing the industrial fourth revolution. The regulatory environment is changing rapidly, and we are trying to move in a direction as quickly as the other leading regulatory regions in the world are doing.

Locally, we have already seen several changes by the regulator to improve. We need to ensure that we equip ourselves with the necessary training to upgrade and upskill ourselves to remain abreast with these changes.

I have realised that navigating this evolving role of a pharmacist has required me to embrace change, overcome challenges, and to seize growth opportunities. By leveraging personal experiences, honing skills and fostering interprofessional collaboration, I have no doubt that pharmacists can enhance their contributions to pharmaceutical industry and advance the profession in the current landscape.

Conscientious objection… a pharmacist's perspective

Gary Black
(Dip.Pharm) FPS

Introduction

Pharmacists are also human! Every individual pharmacist has his own religious beliefs, personal values, cultural traditions, needs and concerns, and perhaps even fears and phobias. According to the New Dictionary of Medical Ethics[4], conscientious objection is *"to object in principle to a legally required or permitted practice".*

This article explores the rights and responsibilities of pharmacists to practise pharmaceutical care according to the dictates of their conscience but without allowing their own personal convictions to jeopardize the care of the patient.

What does the law say? Human Rights… whose rights, who's right?

In order to protect the rights of all people in our country, and to affirm the values of human dignity, equality and freedom, the South African constitution includes a Bill of Rights:

Rights

7. *(1) This Bill of Rights is a cornerstone of democracy in South Africa. It enshrines the rights of all people in our country and affirms the democratic values of human dignity, equality and freedom.*

For the purposes of this article, we consider in more detail, the obligations of pharmacists in respecting and protecting patients' right to healthcare whilst also acknowledging the pharmacist's right to practice his profession with integrity in accordance with his personal right to freedom of conscience.

Consider, from a pharmacy perspective, the following sections in the Bill of Rights.:

Health care, food, water and social security

27. *(1) Everyone has the right to have access to—*
(a) health care services, including reproductive health care;

Freedom of religion, belief and opinion

15. *(1) Everyone has the right to freedom of conscience, religion, thought, belief and opinion.*

Freedom of trade, occupation and profession

22. *Every citizen has the right to choose their trade, occupation or profession freely. The practice of a trade, occupation or profession may be regulated by law.*

So, in accordance with the Bill of Rights, pharmacists must, in practice, also take cognizance of certain foundational rights affecting healthcare and patients including the right to equality and non-discrimination, dignity, life, privacy, access to information, lawful, reasonable and procedurally fair administrative actions.

The Constitution leaves it to subordinate legislation to spell out the details of these rights. So, the National Health Act provides the overarching legislative framework for the delivery of quality healthcare for all in South Africa. The objects of the National Health Act are to regulate national health by, amongst others—

- setting out the rights and duties of health care providers, health workers, health establishments and users; and
- protecting, respecting, promoting and fulfilling the rights of the people of South Africa to the progressive realization of the constitutional right of access to health care services, including reproductive health care.

The Patients' Rights Charter was proclaimed as a common standard for achieving the realization of the right of access to health care services. All pharmacies are required to have the charter displayed in clear view of the public.

However, no right is absolute as can be seen in Section 36 of the Bill of Rights:

Limitation of rights

36. *(1) The rights in the Bill of Rights may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom, taking into account all relevant factors, including—*

- *the nature of the right;*
- *the importance of the purpose of the limitation;*
- *the nature and extent of the limitation;*
- *the relation between the limitation and its purpose; and less restrictive means to achieve the purpose.*

For example:

Whilst *patients* have the right to access medicine as part of their right to healthcare, this access is limited in law by the conditions specified in Section 22A of the Medicines and Related Substances Act.

Similarly, whilst *pharmacists* have the right to choose and practice their profession in terms of Section 22 of the Bill of Rights, they may only do so within all the relevant laws pertaining to pharmacy practice. More specifically, pharmacists are required by Regulation to practise *pharmaceutical care* in accordance with Pharmacy Act Regulations, Good Pharmacy Practice Rules (GPP), the Code of Conduct and the Ethical Rules.

For example:

In terms of respecting the patient's right to privacy, the pharmacist is obliged to practise in accordance with the standards set out for the physical layout of a pharmacy, GPP Rules and SOPs on confidentiality, record keeping and section 1.3 of the Code of Conduct, *Confidentiality*, as well as the Pharmacist's Oath and all other relevant legislation such as the POPI Act, etc.

What is the right thing to do?

Moral authority comes from following universal and timeless principles like honesty, integrity, treating people with respect. ….Stephen Covey

In exercising their Constitutional Rights to freedom of religion, belief and opinion, as specified in Section 15(1) of the Bill of Rights, pharmacists should do so with integrity. *Moral integrity* requires one not only to live up to your own beliefs but also to recognize the rights of others, who may hold beliefs different to yours, to do so.

Individuals make the choice to enter the profession of pharmacy voluntarily and to accept the responsibilities of the profession. This includes a voluntary undertaking to adhere to the seven tenets of professionalism for pharmacists namely, altruism, respect for others, honesty and integrity, accountability, commitment to excellence, professional presence and professional stewardship. These principles are universal and transcend all cultural and religious differences. Irrespective of your own personal values and beliefs, the patients you serve can quite correctly, expect you, as a pharmacist to conduct yourself and practice in accordance with these seven tenets of professionalism and to do so with *professional integrity.*

Professional integrity requires a pharmacist to practice his profession legally within all the laws pertaining to pharmacy, the practice standards set out in Regulations and GPP, and the ethical requirements as set out in the Code of Conduct and the Ethical Rules.

Pharmacists enter the profession primarily to make a difference in the lives of patients and are morally obliged to put the patients' best interest first. They are uniquely trained and charged by Regulation to provide *pharmaceutical care* and it is this that distinguishes them from other healthcare professionals.

Bear in mind your commitment to the first principle of the Code of Conduct, "*Well-being of the patient".* Irrespective of your personal values and beliefs, it will be your professional responsibility to ensure that you practice your profession with integrity to ensure that the patient receives the pharmaceutical care required. Furthermore, this must be done with care, respect and without prejudice. Remember too that you will be held professionally and personally accountable for ensuring that the patient receives the appropriate quality pharmaceutical care he deserves. It is your responsibility to ensure that the pharmaceutical care of the patient is not compromised because of your personal values and beliefs.

There is a positive obligation on the pharmacist to ensure access when exercising the right to conscientious objection. Remember too that *27* (3) of the Bill of Rights specifies:

No one may be refused emergency medical treatment

For example:

Consider the extensive GPP rules related to emergency post-coital contraception (EPC), which state:

"*2.26.5 Professional and ethical responsibility of pharmacists in the provision of EPC ...*

(j) pharmacists who do not wish to provide EPC treatment for personal reasons should maintain objectivity and remain professional when dealing with patients. In this case, patients must be referred to an alternate source of EPC;
(k) if the patient questions the pharmacist as to why he or she will not be providing the product or service personally, the pharmacist should answer in a manner that does not make the patient feel uncomfortable; and
(l) alternate sources for EPC might include referral to one or more pre-arranged options such as:
(i) another pharmacist in the same pharmacy;
(ii) another pharmacy in the vicinity;
(iii) a medical practitioner; and
(vi) a nearby hospital, community health centre, primary health care clinic or reproductive health clinic."

Pharmacists are also human!

Personal integrity involves a commitment to deep moral values. Respect the fact that pharmacists' religion, personal values and beliefs are central to their lives. Accept that these must be taken into account by employers, colleagues and patients in the course of providing pharmacy services and may influence the pharmacist's daily professional practice. This may include, for example, services related to:

- Medical procedures, abortion, blood transfusion, organ donation and transplants
- Sexual health, contraception, fertility medicine, EPC, hormonal therapies
- Dietary requirements
- Mental health and well-being, and substance abuse
- Religious practices, fasting, abstinence from alcohol, pork products
- Fears and phobias e.g. haemophobia, trypanophobia

If you, as a pharmacist, have a valid reason to conscientiously object to providing any particular professional service expected of you, your first obligation should be to address the matter in a professional manner with honesty and integrity. Whilst being true to the dictates of your conscience, recognize and acknowledge your own values and beliefs but do not impose them on other people. Whilst you could

expect public policy, colleagues and employers to recognize and co-operate in accommodating your conscientious objection to perform certain professional tasks, understand that this can only be done if the patients' rights and interests are not compromised.

What to do about it?

To thine own self be true!

Professional integrity requires acknowledgement of your own beliefs, and personal values but you must practice in accordance with the laws of equality, human rights and the rights of the patient to pharmaceutical care. This requires you to consider carefully how and where you could practice your chosen profession in line with your own beliefs and values without compromising patient care.

Factors to be considered include:

- the location, environment and working hours
- the range and type of services the pharmacy provides
- will you be working alone or are their colleagues who will be willing to provide the services which you feel you are unable to?
- are there alternative service providers with suitable opening hours to which you could refer patients to receive the professional service without delay, inconvenience or embarrassment?

Face reality and deal with it!

Recognize, value and accept, without prejudice, the reality of the diversity of the population of our country with its many different cultural, language, ethnic, and religious groups. Be aware of and learn about these cultural, social and religious factors amongst both your working colleagues and the patient community you serve so that you can practice patient-centred, individualised care with sensitivity and understanding. Steps to be taken include:

- working closely with the patient, his care-giver or relative to enable him to make informed decisions about his healthcare/service needs
- understand the patient's needs and any barriers they may face
- identify options available and make sure the patient fully understands these
- engage the patient in open discussions about their personal beliefs and values related to their care: for example, by giving advice on taking medicines during periods of fasting

Similarly, assist your colleagues if necessary, by, *for example*:

- offering to provide a particular service e.g. emergency post-coital contraception, which your colleague may not want to do because of his personal beliefs
- working overtime to allow him to observe certain religious holy days

Take responsibility!

If a pharmacist is unwilling to provide certain services, his responsibility is to exercise pharmaceutical care in his decision-making and make provision for a patient to have alternative access to the service they require. This must be done without judgement, or imposition of his own personal beliefs, or values on the patient. Referral to an alternative service must be clinically appropriate, done in a timely manner and without hindrance.

Communication with patients must:

- be done professionally, with respect, sensitivity, privacy and confidentially
- be adapted to meet the needs of the patient
- be done with appropriate body language, tone of voice and words

Establish reciprocal, respectful, professional working relationships!

Owners of pharmacies are legally required to ensure that their pharmacies operate in compliance with all applicable legislation including both labour laws (as employers) and all laws pertaining to the practise of pharmacy (as providers of pharmacy services). Importantly, they must also undertake to comply with the standards of practice specified in Regulations and Good Pharmacy Practice Rules (see Reg. 7. of Regulations relating to the Ownership and Licencing of Pharmacies). This includes the appointment of a suitable Responsible Pharmacist and professional team to provide pharmaceutical care relevant to the needs of the population to be served by the pharmacy.

The responsibilities of employers towards professional staff include:

- treating staff with dignity and respect
- being sensitive to their personal values and beliefs and not to unfairly discriminate against them
- have appropriate and legally compliant governance, staff training and management systems in place to ensure and that patients are treated with sensitivity and that they receive continuous pharmaceutical care

For example:

- It would be appropriate to schedule work hours/days to accommodate staff who wish to be off duty on certain religious holidays
- Additional training may be needed to ensure that staff understand the special needs of patients who have different values and beliefs

Professional integrity requires employee pharmacists to declare their conscientious objection to providing any particular service. This should be done in open and honest discussion with the employer before any contract of employment is entered into. The employer, in turn, could rightfully ask the potential employee pharmacist whether they have any such conscientious objections which may impact on their ability to render the standard of professional care expected. Any such agreement should be included in the employment contract. The employee/employer relationship should be open and one of mutual respect so that if, during the course of employment new situations arise with which the employee pharmacist is uncomfortable, the problem may be resolved amicably.

Remember, however, that if a particular task can genuinely be described as an "inherent job requirement" (meaning, as interpreted by the Labour Courts, as "absolutely essential" for the efficient and effective performance of the overall job of pharmacist), and you conscientiously object to performing that task, the employer is within his rights to terminate your services as a pharmacist without committing unfair discrimination. This is because the employer is respecting your right to your conscience and beliefs, but needs a pharmacist to perform the

task to which you object in order to provide the patient with his right to pharmaceutical care, and to provide employment for others in the organisation.

Conclusion

Conscientious objection is the right of an individual to refuse to participate in an activity that he or she considers incompatible with his or her moral, religious, philosophical, or ethical beliefs. (International Covenant on Civil and Political Rights. G.A. Res. 1966;2200A(XXI)

Pharmacists wishing to exercise their right to conscientious objection should consider carefully the following statement made by the well-known and highly respected Constitutional Law expert, Pierre de Vos, in a paper titled *"Right vs Rights":*

"*Just because you have a right to do something does not mean that it is right to do it.*"

In exercising their own rights, pharmacists are always required to, firstly, consider whether in doing so, they will not jeopardise the rights of the patient to the pharmaceutical care which they are entitled to.

Disclaimer

This document is a guideline and does not constitute legal advice or reflect official policy of the Pharmaceutical Society of SA. Any person wishing to implement proposals made in this document, must do so in accordance with the requirements of the Pharmacy Act 53 of 1974, Medicines & Related Substances Act 101 of 1965 and all other relevant legislation, and, if necessary, should seek legal advice to ensure compliance.

For further information and copies of reference documents, please contact the author gary@pssacwp.co.za.

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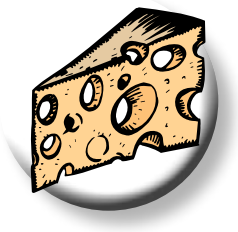

Patient counselling and medicine information…just how far do you go?*

(*see from My Little Black Book of pharmacy practice SAPJ 2013 Vol 80 No 6)

By the early 1980's the four-year pharmacy course had been established for just on a decade with a curriculum emphasis on pharmaceutical chemistry and pharmacology. The practice of community pharmacy had evolved from little old men in white coats mixing their secret *lotions and potions* behind closed doors in a dispensary housed in the back of the premises, to bright new facilities with open dispensaries and the pharmacist in full view of the public, easily accessible. Pharmaceutical care was the new *"buzz word"* with patient counselling, monitoring and provision of medicine information becoming the focus of community pharmacy practice.

The hero of this story (let us call him John) was an intelligent young colleague who had applied himself diligently during his four years of study as a pharmacy student. Conscientious, dedicated and determined, he emerged top of his class with his head crammed full of knowledge, especially that of his favourite subject, pharmacology. In those days, pharmacy students had little or no training in patient counselling and no compulsory programmes of working directly with patients. Many students did gain some experience by working in pharmacies over weekends or during their vacation time. Borne high on the wings of academic success, John looked forward to his internship and the opportunity to put his substantial knowledge of pharmacology to the test in practice.

John successfully secured an internship in a well-established, suburban community pharmacy. The owner of the pharmacy, Mr Mat, had practised in this middle-class community for many years and was much loved and respected by his clients. He had thought long and hard before choosing John as his intern because he wished to retire and had plans of handing over the reins to the younger man once he had completed his internship. It was vitally important that John should be acceptable to and fit into the community of patients whom he had served for so many years.

Mr Mat had trained and qualified in the late 1950's and registered with the then SA Pharmacy Board as a *Chemist and Druggist*. He was a good pharmacist and excellent tutor, determined to teach his new intern all the skills he had acquired in running a professional, efficient and profitable community pharmacy over many years. So it was that John spent the first few months of his internship learning the basic requirements of running and organizing a clean, well-stocked, and efficient dispensary (including, washing and tidying of shelves, ordering and marking of stock, etc.). He was then gradually brought into the actual dispensing process and taught to master the important skills of accuracy, neatness, and continuous checking in dispensing according to an agreed system with careful record-keeping (no computers, all scripts hand-written into the prescription book and all originals manually numbered and filed).

Frustrated at not having the opportunity to use his substantial knowledge of pharmacology, John nevertheless, accepted in good spirit, this training in what he considered to be simple routine tasks, but he was "*chomping at the bit*" to be able to engage patients in order to display his real strengths.

Eventually the time arrived when Mr Mat decided that John was ready to be let loose on the public. John, of course, was delighted when an elderly couple shuffled into the pharmacy to obtain a repeat of the old lady's prescription. The prescription was a real laundry list of medicine covering all the old lady's ailments of diabetes, high blood pressure, arthritis and sleeplessness. This challenge was like manna from heaven for our clever young intern. He stepped forward with this array of carefully dispensed medicine, eager now to use all his hard-learned knowledge of pharmacology in counselling the elderly patient. John was in his element as he went through all the "*do's and don'ts*" of each of the many medicines on the prescription. There was so much to tell! John became quite animated as he rattled on about the medicine, without doubt or hesitation and certainly without a break or giving the patient an opportunity to ask a question herself! Meantime, the patient concentrated on trying to keep up and digest this avalanche of information, nodding occasionally but with her eyes growing bigger with every new fact or warning coming her way!

Finally, having seemingly exhausted his diatribe of information, John popped that last vial of tablets into the packet, smiled kindly at the patient and pleasantly wished the old couple a good-day. John stood back with a satisfactory smile on his face, looking like the cat who got the cream! The elderly couple shuffled their way to the exit. Being subject to the slight deafness that comes with age, they spoke loudly to each other. So, before reaching the door, John and all in the pharmacy clearly heard the old lady say to her husband; "*I never knew that these medicines can do all these things the pharmacist told me, sounds dangerous, I really don't know whether I should be taking all that stuff!*"

John later acknowledged, quite publically, that this little experience had taught him far more than all his pharmacology studies ever did!

Lesson learned!

The two words 'information' and 'communication' are often used interchangeably, but they signify quite different things. Information is giving out; communication is getting through. Sydney J. Harris (American journalist and author)

Ek sê maar net!

Gary Black

P.S. I am pleased to report that John did take over the pharmacy successfully, and in turn, himself became well accepted, respected and endeared by that community!

Pharmaceutical Practitioner

South African Association of Community Pharmacists

A day in the life of a PCDT pharmacist – "Peeling the Layers"

Frans Landman

Frans Landman is a PCDT pharmacist. He completed the PCDT course in 2012/2013 at NWU and his business partner did the same course a year later.

Frans describes a few case studies to highlight the contribution a PCDT pharmacist can make in primary health care, improving access to healthcare for patients.

Introduction

In the years since the moratorium on the qualification of PCDT (Primary Care Drug Therapy) was lifted, our business underwent some challenges regarding the demographics of independent pharmacy. The focus of our long standing clients moved mainly to corporate pharmacy and newly built malls. As the saying goes the only constant is change. At the time we had an active baby and family planning clinic.

Having completed the PCDT course brought a new dimension to the services we offered our clientele, from only family planning and immunization, we now also offered primary healthcare services.

After qualifying as a PCDT pharmacist, my world of pharmacy changed forever. I started to look at the patients visiting our pharmacy with new eyes. By just listening to the complaints of the patients, I could offer a more comprehensive service to their health outcomes.

Let me explain the statement **"Peeling the Layers"**. When a patient arrives and poses their complaint, our aim through thorough history taking, is to arrive at a differential diagnosis, which in many instances is different from the main complaint. In many cases, our role is to provide access to healthcare and where needed referral to a hospital, or to medical practitioners for follow-up treatment. To explain further, 4 case studies are shared below.

Case study I

We had a client stating that his relative was quite ill, and asked if he could bring him to the pharmacy. We said yes. On arrival a young man of 21 years presented with severe weakness, vomiting and body pains. During history taking, his friend stated that he was from Mozambique. My first reaction was to do a malaria test. I then found out that he had first arrived 3 months ago but could not attend the public hospital as he has no papers, i.e. no passport. Could we help him? My first thought was that if he had arrived 3 months ago it could not be malaria. I checked his vitals and found a temperature of 38°C. His blood pressure was normal, but he had a high pulse, his ears were bulging, his throat was red, and on palpation his lower abdomen was tender.

I decided that this could be a case of acute abdomen, as the patient started vomiting again; we phoned for an ambulance to admit him to hospital.

At the time of examination, I observed the outcome of the malaria test, and found it reacted positive to *Plasmodium falciparum*. On further questioning his friend, he stated that the patient's cousin had arrived a week ago from Mozambique.

We concluded that this was a case of Odyssean Malaria, or as it is otherwise known in medical circles, "taxi malaria". The patient was admitted to hospital and on following up we found that he had been discharged after three days with medicinal treatment and was doing well.

Case study II

A female patient of 41 years attended our clinic facility stating that she has lower abdominal pain, and that her lower abdomen feels extended. Her vitals, blood pressure, and blood glucose were normal. Testing her urine with a test strip, all seemed normal, but on performing a rapid pregnancy test, she had a positive HCG (Human Chorionic Gonadotrophin) value. She stated that she cannot understand this as she is on the three-monthly injection. With further questioning, I found that she had a negative HCG test at the clinic when she started with her 3 months Medroxy progesterone acetate injection, but that she had not used protection for the first month after receiving her injection.

Case study III

A male patient of 22 years, residing in an informal settlement, attended our clinic, lying on two chairs, and in severe pain. Upon examination his vitals were normal, but with a fast pulse, no fever, and no other abnormalities, except that we found that he had severe tenderness and pain in the right lower abdominal quadrant.

We phoned for an ambulance to transport him for admission to a public hospital; while waiting for the ambulance (which could sometimes be 40-60 minutes), we made a hot water bottle to ease his pain.

Two weeks later he brought a bunch of flowers to thank Christine, my business partner, for helping him with the hot water bottle. He had a severe case of appendicitis, and upon admission that afternoon his appendix was removed.

Case study IV

A patient attending our clinic, stated that she wants to make use of our family planning services, and after discussing her age (33 years) agreed to the 2 months Norethisterone enanthate injection method.

When we explained the history taking process and that we need to do an HCG test, she replied that she is currently on her menses, and that she has not used any method of contraception for the last year. We checked her vitals; weight and blood pressure were found to be normal, but she had a positive HCG test.

We explained that this is contra-indicated for receiving an injection. We referred her to the local public clinic for assessment and antenatal services.

Conclusion

In all four cases, the PCDT pharmacist played a vital role in providing accessible healthcare to patients who might otherwise struggle to receive timely medical attention. Conducting thorough assessments and diagnostic tests, also includes critical medical decisions and referrals and offering immediate care and interventions when necessary. PCDT pharmacists also bridge the gap between community healthcare needs and specialised medical services. These case studies underscore the importance of PCDT pharmacists in expanding access to quality healthcare, especially in underserved areas or for patients facing barriers to traditional medical services. Do we make a difference? Definitely!

Reflecting on the 2024 SAAPI Conference held 5–7 June 2024

Byron Chukwu

Conference committee chair 2023/2024

With the theme ENGAGE & EMPOWER, this year's SAAPI conference aimed to do just that. With speakers from both SAHPRA and industry (local and international), the conference allowed for a whirlwind of experiences, learnings, and connections.

At this year's conference, we celebrated SAAPI's 30th year of existence. We took a walk down memory lane with Miranda Viljoen who presented us with SAAPI's journey from 1994 to date. We also had colleagues from the first SAAPI executive committee of 1994 join us for a spectacular cocktail function. The presence and words of wisdom from the first SAAPI committee provided a sense of hope and inspiration for our young SAAPI members and current executive committee.

One of the most striking aspects of this year's conference was the variety of topics covered. From harmonization of medicines across the African continent, feedback on various updates from our regulator, SAHPRA, to the status of complementary medicines and medical devices inspections, and the maintenance of quality systems among many other exciting topics. We were also provided with insights into the veterinary space and new regulatory systems for various types of submissions. Topics on pricing, the role of supply chain in our industry and pharmaceutical licensing were also covered.

We were thrilled to have DHL as our platinum sponsor and Playbook as our gold sponsor. We were also excited to have Aspen, Strategnos, Vector Logistics, Adcock Ingram and Franklin Covey join us as additional sponsors. A big thank you to all our sponsors for contributing toward the success of this conference.

Beyond the content itself, the conference was filled with diverse perspectives. Delegates had the opportunity to engage and network with fellow attendees and to exchange ideas and build lasting connections. These interactions have not only expanded professional networks but have also fostered a sense of community and collaboration.

Navigating through a variety of sessions, each attendee was confronted with new ideas and perspectives that sparked introspection and growth. Whether it was stepping out of comfort zones to attend sessions outside one's expertise or embracing differing viewpoints, the experience was a testament to the transformative power of continuous learning. The lessons learned here will undoubtedly resonate long after the conference, shaping future decisions and actions in profound ways.

As attendees return to their respective roles and organisations, they carry with them not just new knowledge but also a renewed sense of purpose and possibility. Let us carry forward the lessons learned and connections forged as we continue to push boundaries and unlock new opportunities for growth and innovation.

Members of the SAAPI EXCO 2023/24

From left to right: Yolanda Peens, Christine Ledimo, Gina Partridge, Leanne Blumenthal, Tammy Gopal, Alison Blackhurst, Byron Chukwu, Lynette Terblanche, Yuthika Prahladh, Minoka Maharaj, Millicent Zondi, Thavashini Pather

Leanne Blumenthal, Byron Chukwu, Gina Partridge – participating in the SAAPI Social Media Competition

Veterinary Panel Discussion:

From left to right: Gina Partridge, Dr Cobus Raath, Margaret Churchill, Lydia Motlogelwa (SAHPRA), Dr Alice Sigobodhla (SAHPRA), Millicent Zondi

sapj

CPD questionnaire • July/August

Management of post-traumatic stress disorder: a review of anxiety disorders and PTSD

1. A 26-year-old pharmacist is diagnosed with panic disorder and is prescribed fluoxetine. Which of the following is a key component of patient education that should be provided to the patient?

a Minimise intake of nicotine and caffeine
b Antidepressant medication should be taken at nighttime
c Breathing into a paper bag is a helpful coping mechanism when having a panic attack
d Cognitive behavioural therapy is unlikely to be beneficial while prescribed medication

2. You are discussing goals and objectives of pharmacotherapy of anxiety disorders with your learning team. Which of the following is the long-term goal of therapy in the treatment of each of the anxiety disorders?

a Few to minimal core symptoms
b Partial response after 12 weeks
c Ability to taper adjunctive agent
d Complete remission of symptoms

3. Give the most commonly used class of drugs in the management of Anxiety disorders

a Seretonin Noradrenalin Reuptake Inhibitors
b Antihistamines
c Selective Sereton Reuptake Inhibitors
d Antipsychotics

4. Give the statement that best describes post-traumatic stress disorder.

a Anxiety when having to perform infront of people
b Anxiety after a car accident
c Panic when exposed to groups of people
d Fear of heights and spiders

Mental health update – update on depression with a focus on escitalopram

5. Which of the following neurotransmitters is a major inhibitory neurotransmitter in the central nervous system and is involved in the pathophysiology of depression?

a Dopamine
b Norepinephrine
c Gamma-aminobutyric acid
d Corticotropin-releasing factor

6. Patient X is newly diagnosed with acute depression. What is the first line class of antidepressants would the Dr consider?

a Serotonin Norepinephrine Reuptake Inhibitors
b Monoamine Oxidase Inhibitors
c Selective Serotonin Reuptake Inhibitors
d Benzodiazepines

7. Patient X always defaults when put on medication. With the new diagnosis of depression, which of the following SSRIs is generally known to have fewer side effects and thus might improve adherence?

a Fluoxetine
b Escitalopram
c Citalopram
d Sertraline

8. Which of the following best describes the pharmacokinetics of escitalopram?

a It has a short half-life, requiring multiple daily doses.
b It is predominantly excreted unchanged in the urine.
c It has high protein binding, limiting its free plasma c oncentration.
d It is metabolized primarily by CYP2D6 and CYP2C19 enzymes

Feeling unbalanced? Management of vertigo and Meniere's disease

9. The onset of vertigo has been noted in the following specific populations:

a Woman older than 65 years
b Men and women between 40–60 years
c Men and woman of all ages
d Men and woman older than 65 years

10. The first-line treatment for vertigo, including Meniere's disease is:

a Betahistine
b Corticosteroids
c Anticholinergic agents
d Gentamicin

11. Non-pharmacological treatment of vertigo can include:

a Diet with low potassium content
b Fluid hydration with IV saline solution
c Reduced consumption of caffeine and alcohol
d Increased fresh fruits and vegetables

12. Vestibular rehabilitation is the mainstay therapy for vertigo. The following statement is most correct:

a Vestibular therapy is aimed at curing the underlying disease condition
b Vestibular therapy can include surgical options like a labyrinthectomy
c Vestibular therapy is physical therapy to reduce symptoms caused by vestibular disorder
d Vestibular rehabilitation is only indicated in management of functional dizziness

CPD questionnaire • July/August

Crystals of pain: navigating gout and its management	
13.	**A differential diagnosis to distinguish gout from other inflammatory arthritic diseases, can be done by:**
a	Gout occurs because of the buildup of calcium pyrophosphate in the joints
b	Gout occurs because of buildup of uric acid levels in the serum and crystallisation of uric acid in the joints
c	Gout occurs because of the presence of an offending microorganism ini affected joints
d	Gout can be confirmed by using an X-ray and confirming tophi
14.	**Hyperuriceamia, promoting the formation of monosodium urate crystals, are triggered by:**
a	Diabetes mellitus and insulin treatment
b	Alcohol abuse and tobacco smoke
c	Dehydration, alcohol and hypertension
d	Chronic kidney disease and cardiovascular disease
15.	**Acute gout flares can present with the following symptoms:**
a	Gradual onset of pain and inflammation in lateral joints
b	Characterised by erosion of bone and damage to cartilage
c	Occur suddenly, presenting with severe pain, swelling and tenderness
d	Characterised by persistent synovitis and tophi
16.	**Treatment of gout includes pharmacological and non-pharmacological treatment strategies.**
a	Urate-lowering therapy is the first line of treatment for acute flares of gout.
b	Urate-lowering therapy lowers blood urate levels, stops gout flare-ups and diminishes tophi over time
c	Acute gout flares are treated with low done corticosteroids as first-line treatment
d	Colchicine Houdé can be used as long-term treatment for the management of chronic gout

Beat the itch: allergic conjunctivitis and its management	
17.	**The activation of the allergic cascade in the eye occurs within seconds to minutes with the following symptom-complex:**
a	Increased vascular permeability, migration of inflammatory cells, leading to tissue damage
b	Pruritis, chemosis, redness and watering of the eyes
c	Rhinoconjunctivitis, asthma, eczema and oesophagitis
d	Corneal scarring and pannus formation
18.	**Common adverse effects resulting from overuse of over-the-counter treatment preparations for allergic conjunctivitis, include:**
a	Rebound vasoconstriction
b	Systemic absorption and related side effects
c	Ocular toxicity because of preservatives in eye drops
d	Development of tolerance against the active ingredient
19.	**First-line treatment options for the treatment of acute allergic conjunctivitis include:**
a	Topical antihistamines, e.g. antazoline
b	Systemic antihistamines and corticosteroids
c	Nasal corticosteroids to relieve rhinoconjunctivitis
d	Leukotriene receptor-antagonist, e.g. cromolyn
20.	**Eye-drop administration education is important in the correct management of allergic conjunctivitis, for example:**
a	Eye drops can be shared between members in the same household
b	Multiple drops can be administered consecutively
c	Drops should be administered in the "pocket" of the lower eye lid
d	Blinking or rubbing the eye will not influence absorption of the eye drops

The answers for these CPD questions will be in the upcoming issue of the SAPJ.
This activity can contribute towards your CPD compliance.

CPD answers • May/June

1. c 2. d 3. b 4. c 5. b 6. a 7. d 8. b 9. d 10. a 11. b

Notes:

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