



The Asahi Shimbun Social Welfare Organization conducting a workshop on production and utilization of Twiddle Muffs

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Chief Editor:

A. Abyad
MD, MPH, AGSF, AFCHSE
Email:

aabyad@cyberia.net.lb

Mobile: 961-3-201901

Publisher

Lesley Pocock
medi+WORLD International
AUSTRALIA

Email:

lesleypocock@mediworld.com.au

publishermwi@gmail.com

This issue has a number of interesting cases, review and research from the region and the World.

A paper from Japan by Miki et al., looked at the clinical usefulness of the muf in treating psychological stress in older people with dementia, and to examine how to use it in dementia care.

Eighteen patients aged ≥ 65 years with a "level of independence in activities of daily living for older people with dementia" of I-III who were using long-term care insurance services were included in the study. Participants were asked to freely touch the muf for 20 min, and measurements of the salivary amylase activity levels and mood inventory (MI) taken before and after the intervention were compared. The mean salivary amylase activity values tended to decrease after the intervention, although this was not statistically significant, and no significant changes were observed in the five MI factors: "nervousness and excitement," "excitement," "fatigue," "depression," or "anxiety." The female participants shared stories about their childhood or family during the intervention, and provided positive feedback on the muffs. The authors concluded that Muffs may promote life reviews and positively affect the mental health of older people with dementia.

Dr Alkeir assessed the level of knowledge, attitudes, and importance of lifestyle medicine pillars among physicians and nurses actively working in Dubai Academic Health corporation - Primary health care service. He followed an Observational cross-sectional study was designed. Convenient sampling method was used. Respondents were stratified into physicians and nurses. Online based validated questionnaire used to collect data. Mean composites used to compare between groups. SPSS version 29.0 was used to analysed data. Four hundred and twenty-six participants (426) were invited to participate in the study. The response rate was 61.97% (106 physicians, 158 nurses). The mean composite of knowledge for physicians was 0.632 ± 0.18 vs 0.414 ± 0.13 for nurses (p value < 0.05). The mean composite for inter-

est in physicians' group was 0.93 ± 0.27 vs 0.78 ± 0.39 in nurses' group (p value < 0.05). Mean composite for importance in physicians' group was 3.75 ± 1.18 vs 3.87 ± 0.78 in nurses' group (p value > 0.05). Healthy nutrition was the top important pillar and social connectedness was the less important pillar. The author concluded that the study showed the need for more knowledge among health care providers, particularly among nurses' population.

Khawaja et al., did a cross sectional study was conducted to assess the influence of gender on patient's satisfaction with a medical care received at family medicine clinics in a newly established hospital in Riyadh. Questionnaires were administered to 200 randomly select volunteer patients during January to March, 2022. A total of 148 anonymously completed questionnaires were returned to the investigator. Descriptive statistics were generated for demographic variables. The Likert Scale was used to determine the level of patient's satisfaction and the Mann-Whitney U test was used to determine the difference between the men and women. Results show that the overall level of patient satisfaction on a Likert scale from 1 to 5 was indicated by a mean score of 4.21 ± 1.0 for men and 4.35 ± 0.945 for women patients. The highest satisfaction by both men and women patients was with family physicians and the lowest for waiting time and availability of reading material in the waiting room. Women were more satisfied with the nursing services and environment of waiting room, but was not statistically significant. Mann-Whitney U test illustrates that the Patient's gender has no discernable impact on his or her ratings of satisfaction ($p > 0.5$) on a 26 items questionnaire

Alzahrani, looked at the effectiveness of concurrent pilocarpine treatment on xerostomia induced by radiation in patients suffering from malignancies. The author stressed that simultaneous pilocarpine administration during radiation therapy may raise the salivary flow rate six months after treatment and lower the xerostomia grade rated by clinician. Pilocarpine did not substantially affect patient-

reported xerostomia during the first three months, but by the sixth month, it was better. Pilocarpine's side effects were moderate and bearable. He concluded that concurrent pilocarpine administration during radiation therapy lowers the xerostomia severity and increases the rate of salivary flow.

Helvacı, et al., looked whether Anti-inflammatory dose of aspirin plus low-dose warfarin may increase the leg performance in Buerger's disease. All patients with sickle cell diseases (SCD) were studied. We included 222 males and 212 females with similar ages. Smoking (23.8% vs 6.1%, $p<0.001$), alcohol (4.9% vs 0.4%, $p<0.001$), transfused red blood cells (RBC) in their lives (48.1 vs 28.5 units, $p=0.000$), disseminated teeth losses (5.4% vs 1.4%, $p<0.001$), ileus (7.2% vs 1.4%, $p<0.001$), chronic obstructive pulmonary disease (COPD) (25.2% vs 7.0%, $p<0.001$), cirrhosis (8.1% vs 1.8%, $p<0.001$), leg ulcers (19.8% vs 7.0%, $p<0.001$), clubbing (14.8% vs 6.6%, $p<0.001$), coronary heart disease (18.0% vs 13.2%, $p<0.05$), chronic renal disease (9.9% vs 6.1%, $p<0.05$), and stroke (12.1% vs 7.5%, $p<0.05$) were higher in males. The authors concluded that the hardened RBC-induced capillary endothelial damage initiates at birth, and terminates with leg ulcers-like atherosclerotic endpoints even at childhood in SCD. Similarly, smoking causes a systemic inflammation on vascular endothelium terminating with an accelerated atherosclerosis-induced end-organ insufficiencies in whole body. Its atherosclerotic effect is the most obvious in the COPD and Buerger's disease, probably due to the higher concentrations of toxic substances in lungs and pooling of blood in lower extremities. Since the already developed vascular stenoses are irreversible in Buerger's disease, anti-inflammatory dose of aspirin plus low-dose warfarin may be the best treatment regimen to protect fingers and toes from acute infarctions. The regimen may even increase the leg performance by preventing acute ischemias in microcirculation of the legs.

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We review a book - **Suicidal Behavior in Muslim Majority Countries - Epidemiology, Risk Factors, and Prevention** by S. M. Yasir Arafat, Mohsen Rezaeian and Murad M. Khan (Editors).

The editors advise there has been no serious attempt to study suicidal behaviors in Muslim-majority countries previously and the book covers epidemiology, risk factors of suicidal behavior, and the challenges of suicide prevention.

Finally Lesley Pocock provides an essay on Social Media and adolescent Mental Health. The Essay provides a look at the various issues regarding social media and the mental health of adolescents and explores how governments in Australia India, the UK and US are responding to these issues.

Clinical Utility of the Twiddle Muff for Older Patients with Dementia

Emi Miki¹, Hanae Morita², Masahiko Yamamoto³

(1) Faculty of Rehabilitation, Kansai Medical University, Hirakata, Japan

ORCID ID: <https://orcid.org/0000-0003-3681-4658>

(2) The Asahi Shimbun Social Welfare Organization, Osaka, Japan

(3) Wasurenagusa Office, Osaka, Japan

Corresponding author:

Emi Miki, PhD, OTR

Faculty of Rehabilitation, Kansai Medical University, Hirakata, Japan

Uyamahigashicho 18-89, Hirakata, Osaka, 573-1136, Japan

TEL: +81-72-856-2316

Email: mikiem@hirakata.kmu.ac.jp

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Abstract

Objective: In the United Kingdom, the twiddle muff is used in dementia care. The purpose of this study was to examine the clinical usefulness of the muff in treating psychological stress in older people with dementia, and to examine how to use it in dementia care.

Methods: Eighteen patients aged ≥ 65 years with a "level of independence in activities of daily living for older people with dementia" of I–III who were using long-term care insurance services were included in the study. Participants were asked to freely touch the muff for 20 minutes, and measurements of the salivary amylase activity levels and mood inventory (MI) taken before and after the intervention were compared.

Results: The mean salivary amylase activity values tended to decrease after the intervention, although this was not statistically significant, and no significant changes were observed in the five MI factors: "nervousness and excitement," "exhilaration," "fatigue," "depression," or "anxiety." The female participants shared stories about their childhood or family during the intervention, and provided positive feedback on the muffs.

Conclusions: Muffs may promote life reviews and positively affect the mental health of older people with dementia.

Key words: dementia, life review, mental health, psychological stress, twiddle muff

Abbreviations:

MI: mood inventory

BPSD: behavioral and psychological symptoms of dementia

QOL: quality of life

UK: United Kingdom

Introduction

Owing to the aging population, the number of people with dementia in Japan is expected to reach approximately 7 million by 2025, and 1/5 older people will develop dementia [1]. The behavioral and psychological symptoms of dementia (BPSD) increase stress levels in these patients and their families and affect their quality of life (QOL). Although the development and dissemination of rehabilitation and care models for BPSD are expected [2], there are insufficient reports on the effectiveness of non-pharmacological interventions for BPSD [3,4].

People with dementia are said to feel strong anxiety and loneliness about the change in their connections and relationships with those close to them owing to the loss of language and communication skills and of their previous roles. Reduced communication deepens the sense of isolation among people with dementia, affecting their mental health and leading to the emergence of BPSD [5]. Kimura et al. [6] reported that communication with validation as an emotional intervention in older people diagnosed with Alzheimer's disease and emerging BPSD significantly improved salivary amylase activity levels and face scale ratings and that salivary amylase activity levels were elevated when BPSD were emerging.

In the United Kingdom (UK), the twiddle muff (muff) is widely used as a form of dementia care. The muff is a thermal protection device made of tubular knitted fabric with ribbons, buttons, and other accessories sewn on the inside and outside, and it is warmed by inserting hands from both sides. Twiddle means "to fiddle with the hands," and touching or inserting hands into the muff provides a sense of security. In the UK, there seems to be a custom wherein volunteers and housewives who enjoy knitting make muffs and gift them to local hospitals and facilities for older people. Older people with dementia reportedly feel a sense of security and can reduce their mental stress by touching the muffs. However, we have found no reports verifying the effectiveness of muffs.

In Japan, since 2018, dementia support groups have been making muffs and giving them to nearby older people's care facilities [7], with the aim of bringing smiles to older people with dementia and expanding new connections with local people through the creation of the muffs. Suzuki and Togashi [8] reported the use of muffs as an alternative to mitten-type restraint belts in an effort to minimize the use of physical restraints in patients who refuse treatment or care due to BPSD or delirium. However, the use of muffs in dementia care may be limited, and their clinical usefulness and utilization have not been fully explored. We hypothesized that if the usefulness of muffs in improving the mental health of older people with dementia could be demonstrated, it would lead to higher-quality evidence-based dementia care practices. Therefore, we conducted this study to examine the clinical usefulness of muffs in treating mental stress and mood in older adults with dementia.

Methods

1. Study Participants

(1) Eligibility and Exclusion Criteria

Persons aged ≥ 65 years who were certified as requiring long-term care and using long-term care insurance services (geriatric health care facilities, day rehabilitation, and day care), and whose "level of independence in daily living for older people with dementia" was between I and III, were eligible for inclusion. Patients who had difficulty in daily conversations such as answering simple questions; motor or sensory impairment of the fingers due to central or peripheral neuropathy; skin diseases such as ringworm; severe cardiovascular disease; severe mental illness; or were otherwise judged by the attending physician or nurse in charge as having difficulty participating in the study, were excluded.

(2) Target Number of Participants

The change in salivary amylase activity was defined as the primary outcome, and the required sample size was calculated to be 18 patients, by setting the effect size to 20.0, the standard deviation (SD) of the result to 21.0, alpha error to 0.05, and power ($1-\beta$) to 0.8, referring to previous studies. The target number of participants was set to 20, bearing in mind those who might be excluded from the analysis population. Data were collected between September 2021 and December 2021.

(3) Evaluation Items:

• **Physiological Index:** Salivary Alpha-Amylase Activity Level

Heart rate variability, electroencephalogram, and salivary cortisol levels are objective evaluation indices of mental stress, but there are many problems in using these indices in clinical situations because the measurement methods are complicated and the analysis is time-consuming [9]. In this study of older people with dementia, we used salivary amylase activity as a stress marker as it has a relatively small physical and mental burden on participants and rapid changeability. The salivary amylase level is an indicator of sympathetic nervous system activation [10-12]. Salivary amylase activity increases in response to unpleasant stimuli and decreases in response to pleasant stimuli; it is thus used as an evaluation index for physical and mental stress responses, to discriminate between pleasant and unpleasant stimuli.

Samples for the measurement of salivary amylase activity were collected at least 30 minutes after meal consumption and after the oral cavity had been thoroughly cleaned by brushing of the teeth. In this study, a special test tip was placed under the tongue of the study participants for 30 seconds to collect saliva, and salivary amylase activity values were measured using a salivary amylase monitor (Dry Clinical Chemistry Analyzer, Nipro Corporation, Osaka, Japan).

• **Psychological Index:** Mood Inventory (MI)

The mood inventory (MI) is a self-administered questionnaire that objectively and multidimensionally measures changes in mood over a short period and is intended to measure an individual's temporary mood state [13]. It consists of a total of 40 items, and evaluates five factors: "nervousness and excitement," "exhilaration," "fatigue," "depression," and "anxiety," and the answers to each item are given using a four-point scale ranging from "not at all applicable" to "very applicable." The content of the items was easy to understand using expressions used in daily life. Higher scores indicated stronger emotions. The researcher read the questions orally, listened to the participants' verbal and pointing responses using response cards, then completed the questionnaire as a proxy.

(4) Intervention Method

The researcher prepared a muff and handed it to the participants, who were instructed to touch it freely for 20 minutes in a sitting position in a stable chair in a private room. During the intervention period, the researcher stayed out of the participants' sight to avoid visual and auditory stimuli. If participants spoke to the researchers, their content was recorded. Eating and drinking was prohibited during the study period.

(5) Analysis Method

The Wilcoxon signed-rank test was used to compare the mean, SD, and maximum and minimum values as summary statistics before and after the intervention. The significance level for the test was set at two-sided $p < 0.05$, and IBM SPSS Ver. 26 (IBM Corp, Armonk, NY, USA) was used for the analysis.

(6) Ethical Considerations

The participants and their families were informed in writing and orally of the purpose of the study, that they would not be disadvantaged by cooperating in the study, that it could be interrupted or terminated, that the results would be reported in conference presentations and papers and would be treated in an aggregated manner, that personal information would not be disclosed, and that all data would be deleted and destroyed after the results were published. After publication of the results, all data were deleted and discarded. This study was reviewed and approved by the Ethics Review Committee of the Precision Healthcare Research Organization (Approval No. 21001-3).

Results

(1) Summary of Study Participant Characteristics (Table 1)

The average age of the 18 participants was 84.4 years (range: 67–96 years), 15 were female and 3 were male, and 6 were ranked as I, 7 as IIa, and 5 as IIb in terms of their level of independence.

(2) Changes in Parameters Measured Before and After the Intervention (Table 2).

The mean change in salivary amylase activity level (after intervention - before intervention) was -20.1 (range: -130.0–59.0, SD 52.7) kU/L. Comparing the mean salivary amylase activity levels before and after the intervention, (55.2 (SD 14.4) before vs. 35.1 (SD 8.6) after the intervention), there was a decreasing trend, but no statistically significant change in all five MI factors: nervousness and excitement, exhilaration, fatigue, depression, and anxiety. No statistically significant changes were observed.

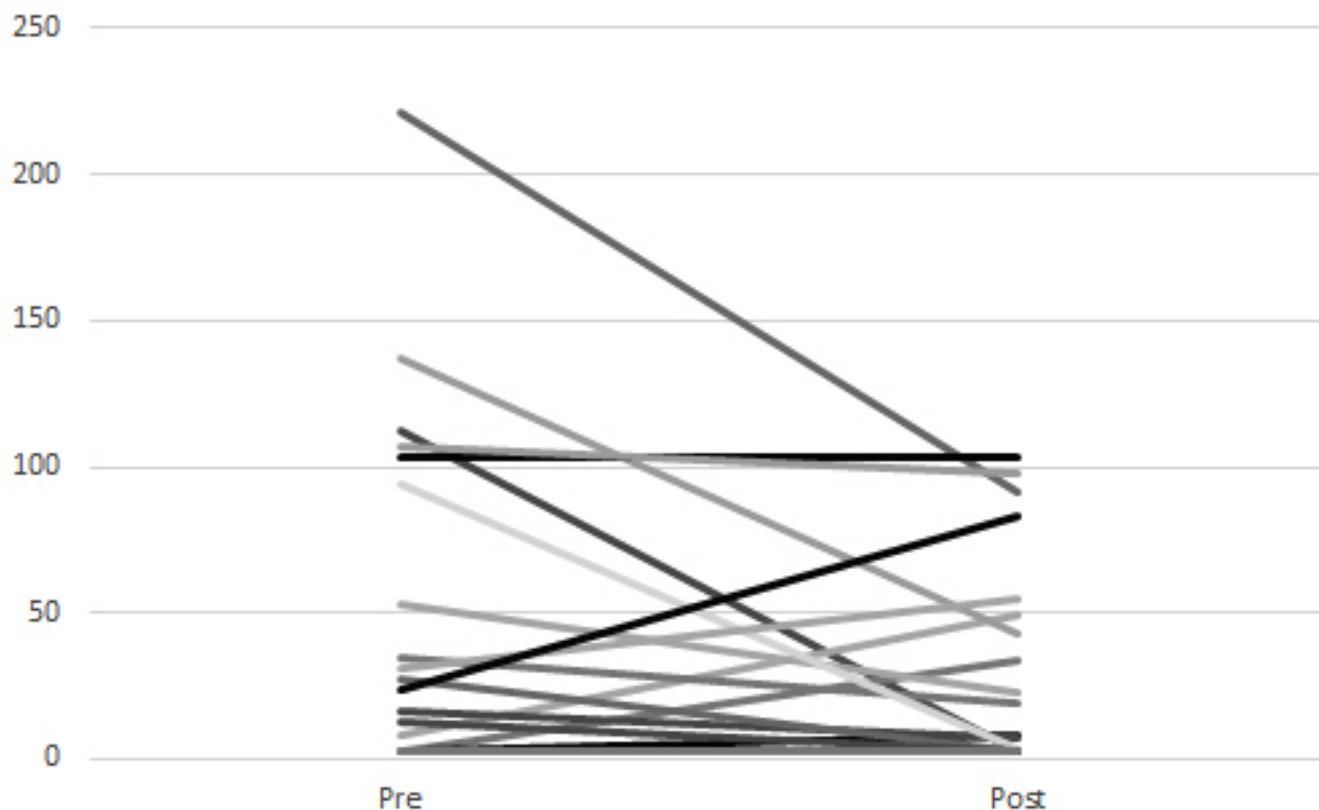
Table 1. Summary of participant characteristics (N=18)

Age	Average (range)	84.4 (SD9.2)	(67–96)
Gender	Female	15	(83.3%)
	Male	3	(16.7%)
Types of Dementia	Alzheimerstype	4	(22.2%)
	Vascular type	6	(33.3%)
	Unknown	8	(44.4%)
Degree of Independence in Daily Living for Older People with Dementia	I	6	(33.3%)
	II a	7	(38.9%)
	II b	5	(27.8%)
Degree of Independent Living for Older People	1	5	(27.8%)
	2	6	(33.3%)
	3	3	(16.7%)
	4	3	(16.7%)
	5	1	(5.6%)

Table 2. Changes in parameters measured before and after the intervention (average values)

	Before	After	p*
salivary amylase activity level (kU/L)	55.2 (SD59.2)	35.1 (SD35.5)	0.201
MI nervousness and excitement	13.1 (SD4.0)	12.1 (SD2.1)	0.253
MI exhilaration	20.0 (SD4.1)	19.6 (SD3.5)	0.614
MI fatigue	14.3 (SD3.8)	15.2 (SD4.0)	0.324
MI depression	12.3 (SD3.7)	12.3 (SD4.5)	0.964
MI anxiety	17.8 (SD4.7)	15.9 (SD4.4)	0.064

* Wilcoxon signed-rank test; MI: Mood inventory

Figure 1: Changes in salivary amylase levels of each participant pre and post intervention**(3) Participants' Narratives During the Intervention**

The study participants' acceptance of the muff was good, and positive comments were made about it, such as "it's warm," "it feels good," and "it's cute." None of the participants refused to touch the muff or was disturbed during the intervention.

As a rule, during the intervention, the researcher was only to respond and listen to the research participants when they spoke to them, and they stood behind the participants. However, many of the female participants talked to the researcher about episodes related to yarn handicrafts, their childhood, and their families. Most narratives were positive reflections of past events and memories. Table 3 and Figure 2 present the state of the research participants and the content of their narratives, respectively.

Figure 2: Intervention in progress

Table 3. Research participant state and narrative content

70's female	She talked about how she used to do yarn handicrafts and make muffs before she got sick, her memories of her mother when she was a child, and her own son.
70's male	He fell asleep with his hand in the muff. He occasionally moved his hand inside the muff.
80's male	He talked about the work of a community councilor, both the rewards and the lack of manpower.
70's female	She talked about how she used to knit sweaters for her son, and do western sewing, although she could no longer do it because her hands shook.
80's female	She said with admiration, "The muff is woven beautifully".
90's female	She teared up, saying that she is old and unwilling to do many things.
90's female	She was still, not saying a word.
90's female	She talked about how she used to do a lot of yarn knitting as a hobby, knitting socks, scarves for herself, etc. She said that when she was a child, rainy days were happy days because her mother, who usually worked in the fields, would stay home when it rained and teach her how to knit.
60's female	She told of how her mother made her a hand-knitted baby dress when she gave birth. She shared her memories, saying that she herself was not good at knitting and that her mother had made her children's clothes and accessories instead. She had difficulty with numbness in her right paralyzed upper limb, but spoke of her right hand being warm in her muff.
70's male	He talked about his hobbies, his work, his family, and his hometown.
80's female	She talked about her frustrations with her family and the difficulties she had in the past.
80's female	She mentioned how, when she was a child, a lady neighbor had taught her how to make hand-knitted socks, how she was so happy when she finished them, and how difficult it was when her house burned down during an air raid.
90's female	She talked about her work and her daughter who sometimes talked to her via videophone.
90's female	She picked up the muff and said, "You knit well, I used to knit a lot in the past." "The sweater I am wearing now was knitted by me for my grandchildren." She told us that the night before a field trip, she worked through the night to finish clothes for all three of her daughters, that she used to make matching outfits for them, and that she also liked to knit.
90's female	She spoke about how she and her husband met, and about her son and daughter.
80's female	She mentioned that she is grateful for all the attention she receives at the facility, and that she has seen people making muffs at a local facility.
70's female	She spoke happily of her son and daughter-in-law. She spoke of how much she missed her own mother and regretted not having been able to give her filial piety.
90's female	She happily spoke of how her father bought her a knitting machine when she was single, and she took knitting classes. She picked up the muff and said, "It's beautifully knitted."

Discussion

In dementia care, muffs are often used with the expectation of suppressing overactive symptoms such as anxiety and aggression seen in BPSD, but their effects on reducing mental stress and encouraging life reviews have not yet been reported. Although the results of this study did not allow us to conclude that the 20-minute use of the muff improved the mental stress and mood of older people with dementia in a clinically significant way, they suggested that exposure to the muff may promote life review and have a positive effect on the mental health of the participants.

Life reviews, which involve positive reflections on memories, are reportedly effective in improving the psychosocial functioning of older people with dementia and enhancing psychological well-being, self-esteem, depressive symptoms, and cognitive function [14,15]. The validation method, which is practiced as a dementia care method, is a communication technique based on listening and empathy that allows older people with dementia to talk and express their feelings using their preferred senses (sight and touch) and techniques, such as reminiscing and touching [16]. The fact that many participants in this study talked about their memories suggests that touching the muff provides a familiar and pleasant visual and tactile stimulus that encourages the expression of emotions and life reviews. Kimura et al. reported that listening to a patient with empathy and respect and sharing relaxed moments, even during a short intervention of 10–15 min, was effective in relieving stress in older people with dementia [6]. Suzuki et al. also reported that more active communication inhibits the control of interactions and difficult-to-cope-with behaviors, and influences the improvement of QOL in older people with dementia [17]. From these previous studies, it can be inferred that listening to and empathizing with the emotions and narratives expressed by study participants had a positive impact on the mental health of the older adults with dementia. Limitations of this study include the small sample size, potential selection bias in the recruitment of study subjects, and the fact that the results of this study cannot be generalized.

The clinical usefulness of muffs for older patients with dementia in this study was not the suppression of overactive symptoms of BPSD or the sedative effect, but rather the improvement of their mental health by evoking pleasant memories through pleasant visual and tactile stimulation using the muffs, activation of brain function, and promotion of communication. When using muffs for dementia care, care providers should consider the suitability of the muff based on the participant's life history, as well as the environmental setting and accessories to be attached to the muff. In addition, when applying the muff, the care provider should not only hand the muff to the patient but also listen to the patient's story, to promote life review and improve mental health.

Further research should be conducted on the clinical usefulness of muffs and their methods for older people with dementia by further expanding the subject population and the scope of study.

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Knowledge and attitude of lifestyle medicine-based approach among health care providers working in Dubai Academic and Health Corporation

Almoutaz Alkhier Ahmed Abdulrahman

Senior Family Medicine Specialist – Dubai Academic and Health Cooperation. FRCGP [int], MPH, Dip IBLM, European Cer LSM, FASLM.

Correspondence:

Dr. Almoutaz Alkhier Ahmed Abdulrahman

Senior Family Medicine Specialist

Dubai Academic and Health Cooperation

Email: khier2@yahoo.com

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Abstract

Introduction: Lifestyle modifications can effectively prevent and delay the progression of many costly diseases, such as diabetes and obesity. Implementing lifestyle intervention in primary health care can improve the quality of life and cost of care. Shortage of knowledge and lack of skills are the main barriers to implement a lifestyle-based approach in primary health care.

Aim: To assess the level of knowledge, attitudes, and importance of lifestyle medicine pillars among physicians and nurses actively working in Dubai Academic Health corporation - Primary health care service.

Methodology: An Observational cross-sectional study was designed. Convenient sampling method was used. Respondents were stratified into physicians and nurses. Online based validated questionnaire was used to collect data. Mean composites were used to compare between groups. SPSS version 29.0 was used to analyse data.

Results: Four hundred and twenty-six participants (426) were invited to participate in the study. The response rate was 61.97% (106 physicians, 158 nurses). The mean composite of knowledge for physicians was 0.632 $\pm$ 0.18 vs 0.414 $\pm$ 0.13 for nurses (p value < 0.05). The mean composite for interest in physicians' group was 0.93 $\pm$ 0.27 vs 0.78 $\pm$ 0.39 in nurses' group (p value < 0.05). Mean composite for importance in physicians' group was 3.75 $\pm$ 1.18 vs 3.87 $\pm$ 0.78 in nurses' group (p value > 0.05). Healthy nutrition was the top important pillar and social connectedness was the less important pillar.

Conclusion: The study showed the need for more knowledge among health care providers, particularly among the nurses' population.

Key words: Lifestyle medicine, knowledge, attitude, Dubai.

Introduction

The American Board of Lifestyle Medicine (1) and the British Society of Lifestyle Medicine (2) define lifestyle medicine as the branch of medicine that uses evidence-based therapeutic interventions as a primary modality that supports behavioural changes through client-centred techniques to improve healthy eating, physical activities, sleep, mental health, social well-being, and harmful substances and behaviours. The American Society of Preventive Medicine (3) defines the Lifestyle medicine-based approach as an approach that uses lifestyle medicine modalities and behavioural changes to prevent and manage chronic diseases.

World Health Organization found that 60% of factors associated with a person's health and quality of life were Lifestyle-related (4). Studies (5) (6) showed that many illnesses, disabilities such as cardiovascular disease, obesity and overweight, metabolic diseases, and some cancers like lung cancer and even death are related to unhealthy behaviours. Schroder (7) showed that nearly 80% of chronic diseases are preventable, and lifestyle behaviours are responsible for 40% of premature deaths. Lifestyle modifications are essential in the rising epidemic of non-communicable diseases (8). They can effectively prevent and delay the progression of many costly diseases, such as diabetes and obesity (8).

Research has rapidly recognized the roles that sleep, stress, and social connection play in morbidity and mortality (9,10,11). The cost-effective benefits of Lifestyle vs. pharmacotherapy were prominent in many studies (12,13). Eriksson et al (14) found that implementing lifestyle intervention in primary health care can improve the quality of life and cost of care.

There is significant variability between health care providers in primary health care practice in their competencies to work through the different components of lifestyle medicine and their capabilities to produce lifestyle medicine evidence-based recommendations to their patients (15). Many barriers affect the implementation of lifestyle medicine in primary care, such as a shortage of knowledge and a lack of skills among healthcare providers (16,17). This deficiency in implementing lifestyle medicine in clinical practice could be due to a deficiency in education and training programs (18,19). Mondala and Sannidhi (19) found that physicians spend an average of 10 seconds counselling their patients about nutrition. Cardinal et al. (20) recommended that 50% of physicians need training to counsel patients about exercise.

Many studies (21,22) assessed the knowledge and attitude of patients toward a lifestyle medicine-based approach. However, a literature search showed that only some studies assessed the knowledge and attitude of healthcare providers currently working in primary healthcare (23,24). Harkin et al. (25) assessed physicians' knowledge, attitudes, and counselling practices but considered only one component: diet. Others assessed the components of lifestyle medicine among patients with specific diseases such as diabetes type two (26) or hypertension (27,28). In

summary, many studies assess knowledge and attitudes toward Lifestyle medicine-based approaches in primary health care; some assess them from the perspective of the patients and non-medical staff, and some view them from the medical staff perspective. This research assesses the knowledge, attitudes, and importance of lifestyle medicine components among primary healthcare providers (physicians and nurses) in Dubai Health Authority, Primary healthcare service. The results of this research can help primary healthcare decision-makers design training programs for more needed groups to improve knowledge and skills in lifestyle medicine, which will reflect positively on patient care and disease outcomes (29).

Aims and Objectives

Health care providers at primary health care centres face many health problems caused by unhealthy habits such as obesity, diabetes, hypertension, and other metabolic diseases. Health care providers differ in their approach to deal with these diseases. This study aims to measure the knowledge and attitudes towards lifestyle medicine-based approach among health care providers (physicians and nurses) who are currently working in Dubai Academic and Health Authority - Primary health care service in Dubai emirate.

1. Assess the level of knowledge about lifestyle medicine among primary health care providers working in primary health care in Dubai Emirate by using a self-reported survey distributed to current workers.
2. Assess the attitudes of primary health care providers working in primary health care in Dubai Emirate towards a lifestyle medicine-based approach by using a self-reported survey distributed to current workers.
3. Assess the importance of lifestyle medicine components from the perspective of health care providers working in primary health care in Dubai Emirate by using self-reported survey distributed to current workers.

Methodology

1. Ethical approval

This study was approved by Mohamed Bin Rashid University Institution board review (MBRU IRB-2023-132) and Dubai Scientific Research Ethics committee (DSREC-11/2023_05).

2. Study type

An observational, descriptive, cross-sectional study was conducted using a self-report questionnaire survey to collect data. This type of study matches the aim and objectives of this study as it estimates the level of knowledge and attitude towards lifestyle medicine-based approach among a section of primary health care providers (physicians and nurses) working in primary health care (30) and can be conducted in a short time with less cost (30).

3. Sampling and sample size

The estimated number of healthcare providers (physicians and nurses) working in primary healthcare is approximately 426 healthcare providers (171 physicians and 255 nurses).

A convenient sampling method was adopted. All healthcare providers (physicians and nurses) were invited to participate in the study through their e-mails. The invitation included the study leaflet and a link to the online questionnaire. Healthcare providers who participated in the questionnaire validity were excluded (20 participants). The study analysis included those who completed and submitted the survey. Respondents' health care providers were stratified into the physicians' and nurses' groups.

Even if participants choose to participate, they can change their minds at any time and withdraw from the study without giving a reason unless they had completed the survey and submitted it or the data had already been analysed.

4. Inclusion criteria and exclusion criteria

4.1. Inclusion criteria

- Current active workers; physicians and nurses.
- Primary health care staff.

4.2. Exclusion criteria

- Medical students in training rotation.
- Volunteers working in primary health.
- Retired and resigned workers.
- Participants in the pilot questionnaire testing.
- Hospital-based staff.

5. Data collection

The data was collected by using a pretested self-reported questionnaire-based survey. An extensive literature review was done to find an open access validated questionnaire to assess the knowledge and attitudes toward lifestyle medicine approach in primary health care providers (physicians and nurses), but results could not find any free open access published questionnaires so a questionnaire was created for the purpose (23); (21); (31).

5.1. Piloting test

The pilot testing for the questionnaire was done in two cycles. Each cycle included five healthcare providers (3 physicians and two nurses) to review the questionnaire (32). Reviewer feedback was used to refine the questionnaire (32). The pilot testing aimed to make the questionnaire understandable and easy to complete by all participants.

5.2. Validation

Face validation was done through two groups (33). The first group included 5 participants; they checked the questionnaire for the intended topic of the survey and determined whether the questions were relevant to capture the intended research topic. The second group included 5 participants; they checked for common linguistic errors, expression, and clarity of questions, which may lead to confusion and repeated questions. Based on his feedback, an expert was consulted, and the questionnaire was revised to the final format.

Content validation was done by sending the revised questionnaire to two experts in the field of lifestyle medicine to assess the content and help remove irrelevant and weak questions. The expert's feedback was received, and

the questions were modified based on their comments. The revised questions were sent to them for approval. They agreed on the finalized content of the questionnaire questions and their relevance to the pillars of lifestyle medicine.

The online questionnaire-based survey model was adopted as its cost and efficacy proved to be higher than the complex copy-based questionnaire survey model. Evidence showed that web-based platforms for electronic surveys are less costly and more efficient at catching up with responses (34). A web-based survey (<https://www.surveymonkey.com/mp/sign-in/>) was used to create and distribute the survey (35). Completed surveys were analyzed from the data collected through the web-based survey platform (<https://www.surveymonkey.com/mp/sign-in/>).

5.3. Questionnaire format

The survey is composed of three parts. The first part collects demographic data (age, gender, occupation, and duration of occupation). The second part assesses the knowledge and attitudes in lifestyle medicine. The third part ranks the lifestyle medicine pillars.

5.3.1. Knowledge assessment: This part was assessed based on the recommended guidelines from the literature (2) (1). Three MCQs assessed each domain of lifestyle medicine. Eighteen (18) questions were asked in a multiple-choice question pattern with one correct answer and three false answers, one mark for the correct answer, and zero mark for the wrong answers.

5.3.2. Attitude assessment: Four dichotomized questions with "yes" or "no" answers exist. For each yes answer, the participant scored one, and for each No answer, the participant scored 0.

The Likert scale of the lifestyle pillar's importance was assessed by 5 points (not important at all =1, not important =2, neutral =3, important=4 and very important= 5); level of importance per each participant for each pillar registered on the SPSS sheet for data analysis.

5.3.3. Ranking of lifestyle medicine components: The six lifestyle components were listed, and the participant was requested to arrange them based on their importance for him/her in his/her practice, with "6" being the highest importance and "1" being the lowest important.

6. Consent

The completed and submitted questionnaire is a signed consent form for the study. This is explained in the study leaflet information (Appendix 1)

Data Analysis

The following data were collected: age, gender, occupation category, years of experience working in Dubai Academic and Health Corporation, a score of knowledge, attitudes towards lifestyle medicine components, and rank of lifestyle components. Categorical nominal variables like gender and occupation category was coded as: gender

(male = 1, female= 2), occupational category (physician=1, nurse =2). The categorial ordinal variable (Likert scale) also coded (Not important at all=1, Not important=2, Neutral = 3, Important = 4, Very important = 5). Dichotomous, nominal variables were used to assess the attitudes coded as 1=yes and 0=No. SPSS software was used for statistical analysis (IBM, version 29.0) (36).

Descriptive statistics were used to:

- Analyse the study population based on demographic data and to find any correlation between the means and age and duration of work.
- Calculate the mean composite of the level of knowledge.
- Calculate the mean composite of the attitudes about lifestyle components.
- Calculate the mean composite scores of the level of importance of lifestyle components.
- Calculate the overall mean composites.
- Calculate the correlation between means composite of knowledge, age and duration of work.

Inferential statistics compared data to find any statistically associated significance. Graphical representation using appropriate graphs was utilized to make data more transparent and explore any trends or patterns.

Results

Four hundred and twenty-six (426) healthcare providers were invited to participate in the study (171 physicians and 255 nurses). Twenty participants were excluded because they participated in the questionnaire validation. Four hundred and six healthcare providers were eligible to be included in the study (161 physicians and 245 nurses) (Table 1). Two hundred and sixty-four (n=264) responded (106 physicians and 158 nurses). The mean age of physicians was 53.08, SD 7.35 years and for nurses was 35, SD 5.1 years (p -value <0.05). The mean work duration for physicians was 10.86, SD 7.82 years while it was 11.55, SD 6.12 years for nurses ($p > 0.05$). The overall response rate was 61.97% (61.98% physicians and 61.96% nurses, $p > 0.05$). There were more female participants than male participants (171 vs. 93, $p < 0.05$).

Table 1: Demographic data of participants

Variable	Physicians N=106	Nurses N=158	Overall N = 264
Age (Mean, SD) years	53.08, SD 7.35	35, SD 5.1	46.8, SD 10.95
Gender (number)			
Female	69	102	171
Male	37	56	93
Years of experience (Mean, SD)	11.92, SD 5.31	10.86, SD 7.82	11.55, SD 6.12

SD = Standard Deviation

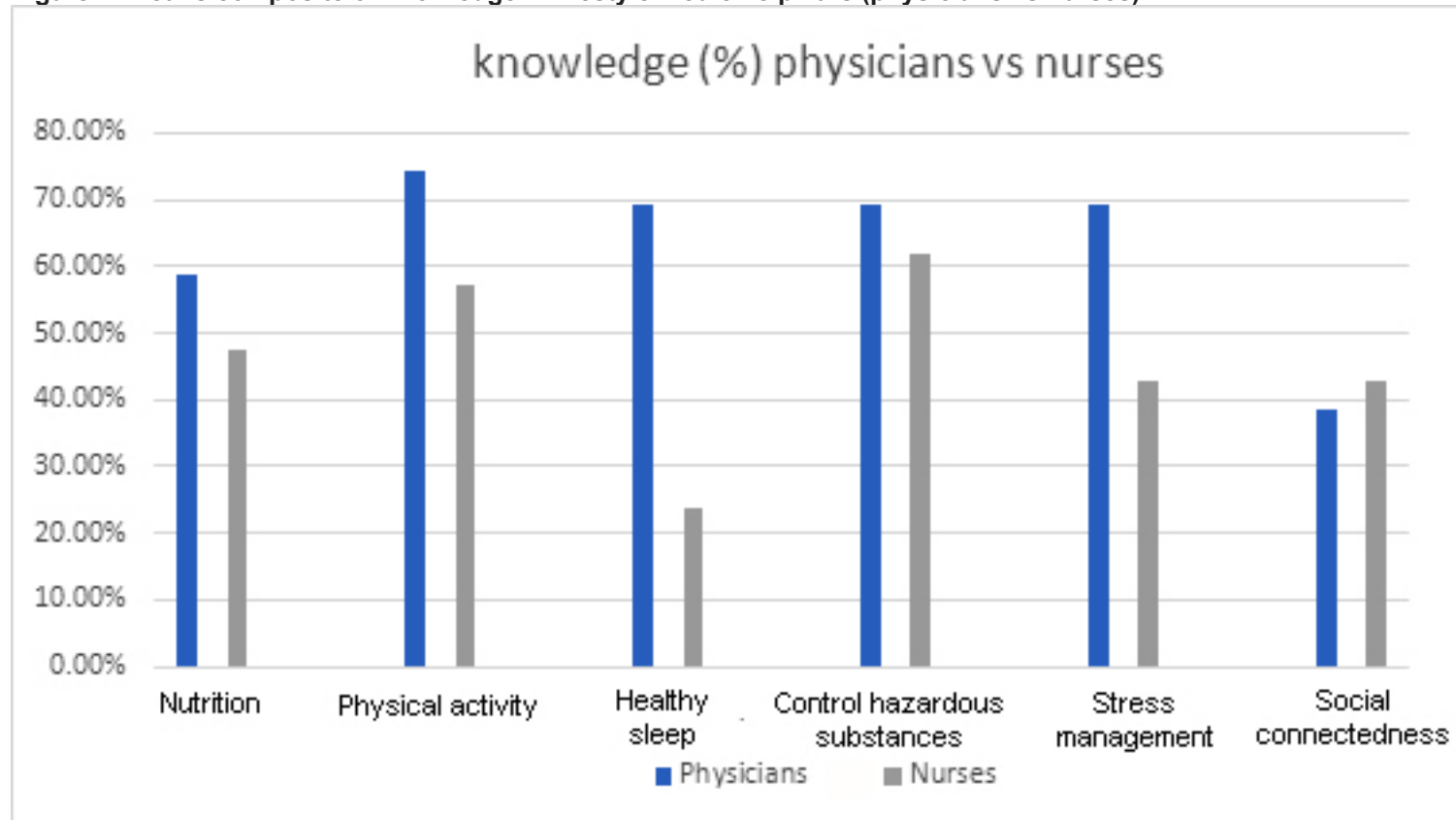
The means composites were used to compare between groups. The mean composite is the mean of means. There were significant differences in a mean composite of knowledge and attitude between physicians and nurses (0.632, SD 0.18 vs 0.414, SD 0.13, $p < 0.05$), (0.93, SD 0.27 vs 0.78, SD 0.39, $p < 0.05$) but there was no difference in the importance of lifestyle pillars (3.75, SD 1.18 vs 3.87, SD 0.78, $p > 0.05$) (Table 2).

Table 2: Means composites; knowledge, attitude, and Importance of Lifestyle pillars

	Knowledge	Attitude	Importance
Physician (Mean, SD)	0.632, SD 0.18	0.93, SD 0.27	3.75, SD 1.18
Nurses (Mean, SD)	0.414, SD 0.13	0.78, SD 0.39	3.87, SD 0.78
Overall (Mean, SD)	0.523, SD 0.06	0.85, SD 0.11	3.77, SD 0.035
P value	<0.05	<0.05	>0.05

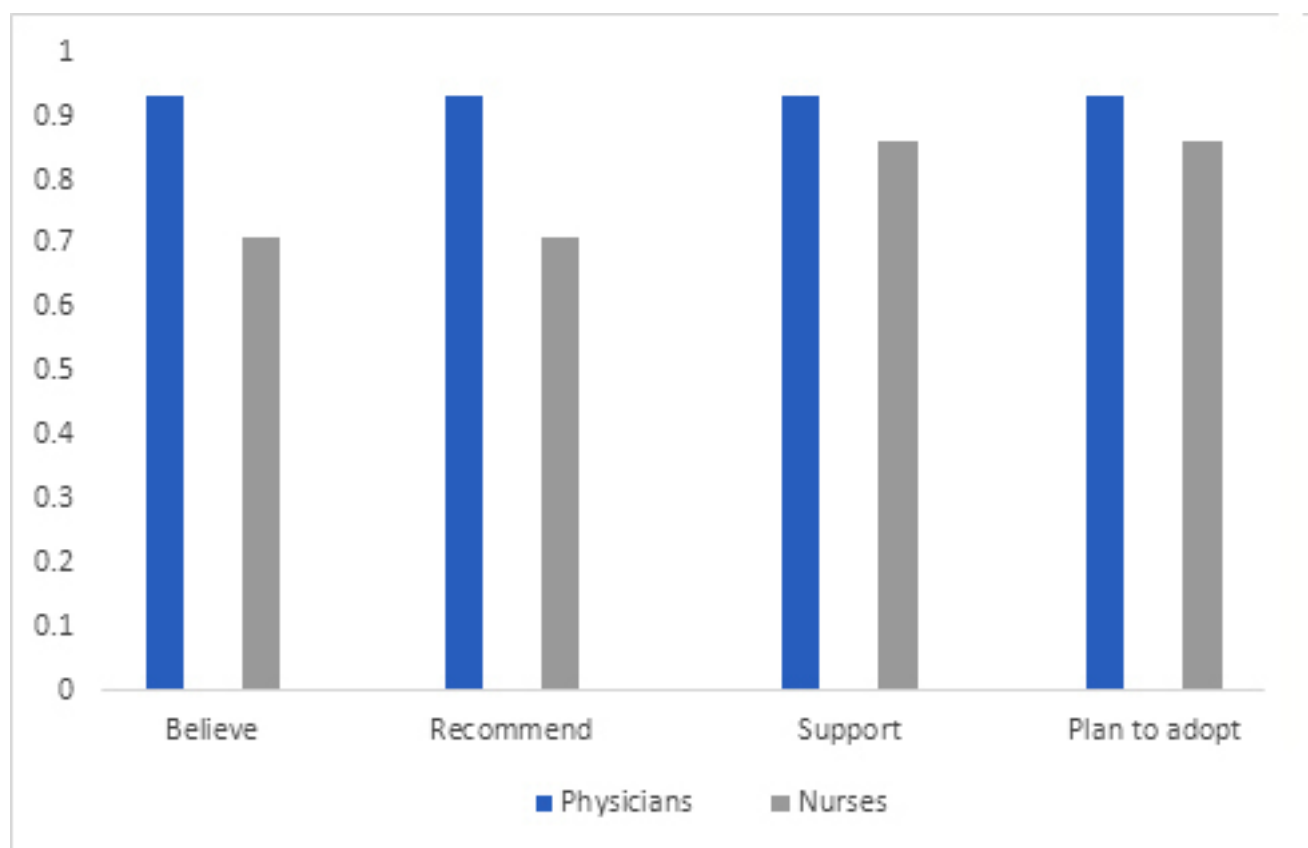
SD =Standard Deviation

Physicians and nurses showed differences in their level of knowledge through the lifestyle pillars (Figure 1).

Figure 1: Means composite of knowledge in lifestyle medicine pillars (physicians vs nurses)

Physicians showed a high mean composite of knowledge in physical activity (74.35%) and lowest mean of knowledge in social connectedness (38.46%). Nutrition, healthy sleep, control hazardous substance and stress management means composite for physicians were 58.97%, 69.23%, 69.23% and 69.23% respectively. Nurses showed a high mean composite of knowledge in smoking cessation (61.9%), while they showed a lower mean composite of knowledge in social connectedness (42.86%). Nutrition, physical activity, healthy sleep, stress management means composites for nurses were 47.61%, 57.14%, 23.8% and 42.86% respectively. Although the mean composite of knowledge of social connectedness was the lowest in both groups, physicians, and nurses, it was better without significant statistical difference in nurses rather than physicians (42.86% vs. 38.46%, $p > 0.05$).

Both physicians and nurses showed a high attitude in lifestyle medicine. The attitude was subdivided into four domains: believe, recommend, support, and plan to adopt (Figure 2). The mean composite for attitude in the physicians' group was 0.93 SD 0.28 and for the nurses' group 0.78 SD 0.11 ($p < 0.05$). The attitude assessment was subdivided into believe, recommend, support and plan to adopt. Physicians scored 0.93 SD 0.28, 0.93 SD 0.28, 0.93 SD 0.28 and 0.93 SD 0.28 respectively. Nurses scored 0.71 SD 0.49, 0.71 SD 0.48, 0.86, SD 0.38 and 0.86, SD 0.38 respectively.

Figure 2: Comparison between attitude domains (physicians vs nurses)

Healthy nutrition was the first pillar in importance scale and social connectedness was the least pillar in importance (Table 3).

Table 3: Importance of lifestyle pillars

Rank	Pillar	% of participants
1st	Nutrition	65
2nd	Physical activity	50
3rd	Sleep	45
4th	Control hazardous substance	40
5th	Stress management	60
6th	Social connection	65

Low knowledge of social connectedness could explain the position of social connectedness in the ranking list. Social connectedness occupied the sixth pillar, close to stress management pillars.

Knowledge Means, age, and duration of work were correlated using Pearson correlation to detect any relation between knowledge means, age and duration of work. Pearson correlation was + 0.342 (positive, moderate correlation) with a significant difference ($p < 0.05$) for work duration. Pearson correlation was + 0.241 (positive and low correlation) with a significant difference ($p < 0.05$) for age. Both age and work duration were correlated with means of knowledge but with different degrees, while it is moderate for work duration, it is low for age. Each correlation was statistically significant ($p < 0.05$).

Discussion

To the researcher's knowledge, this is the first study to assess knowledge, attitude, and ranking of lifestyle medicine pillars among physicians and nurses working in primary health care in Dubai Academic and Health Corporations. Extensive searching in primary and secondary search engines failed to find similar papers conducted in Dubai Academic and Health Corporation or the previous Dubai Health Authority.

The study results showed lower level of knowledge among nurses in comparison to physicians (knowledge mean composite 0.632, SD 0.18 vs 0.414, SD 0.13). This could be explained by the younger age of nurses (physicians 53.08 SD 7.35 years vs nurses 35 SD 5.1 years) and shorter years of work duration (physicians 11.92, SD 5.31 years vs nurses 10.86, SD 7.82) which reflected less level of experience in nurses than physicians. This was proven by the positive correlation of knowledge with age and duration of work. The bulk of nurses' work is technical with many procedures implementations through the day, with less academic activities to increase or maintain knowledge and skills. Different studies pointed to the lack of knowledge among nurses as barriers to implement lifestyle medicine in primary health care (37,38). Jansink et al (37) found lack of counselling skills and knowledge among tested nurses in their study. The included nurses were assessed in nutrition, physical activity, and smoking cessation counselling skills. Jansink et al (37) included only female nurses who were 65% in our study while 35% were male. More study recruiting matched female to male groups are needed to generalize outcome results.

Parker et al (38) studied the level of knowledge among health professionals working in South Africa regarding nutrition, physical activity, and smoking cessation. They found that physicians achieved an overall knowledge score of 70% SD 10 while nurses achieved a 60% SD 10. Our results showed a similar pattern: physicians get higher scores than nurses (63.2% SD18 vs 41.4% SD 13). Parker et al (38) studied different health care professionals' categories. They defined a nurse as a graduate-trained nurse who has passed a state registration examination and has been licensed to practice, and subclassified doctors into doctors and community service doctors. In contrast, in our study, healthcare professionals were defined as physicians and nurses who currently worked in primary healthcare. This basic variation could affect the comparison between results. Studies showed a deficiency in knowledge and skill in obesity, nutrition, and physical activity among primary care physicians (39), consistent with our results. However, the deficiency was more apparent among nurses than physicians. Aalto et al (40) reached the same conclusion when they studied the Primary health care nurses' and physicians' attitudes, knowledge, and beliefs regarding brief intervention for heavy drinkers. They found a similar gap in knowledge between physicians and nurses. Variations in the level of knowledge could be attributed to the curricula followed in medical and nursing colleges. Lack of training hindered implementation of

lifestyle medicine in practice (41). Usually, nurses are the first point of contact in primary health care; variation in the level of knowledge between nurses and physicians could create uncertainty among patients about whether they are receiving the best possible care. Gledhill et al (42) found that variation in knowledge between physicians and nurses could lead to confusion among patients about the current management plan they received.

Although, the attitude was high in both groups, it is lower in nurses than physicians; this may show that the job category has influenced on the attitude. This finding can be explained by the level of knowledge and counselling skill, the lower the level the lower the attitude and vice versa.

The high ranking of healthy nutrition and physical activity was consistent with other studies (43). Bonnet et al. (43) found that 100% of their sample chose nutrition as the first pillar and 95% chose physical activity as the second. In our study, 65% chose nutrition as the first pillar and 50% chose physical activity as the second. This variation could be due to the nature of the sample. As in the Bonnet study, the sample is a small group of postgraduate medical students in a teaching environment (21 medical students). At the same time, in our study, they are a group of professionals working in a non-educational environment, and the risk of insufficient recalling of knowledge is high due to busy shifts.

Studies showed many barriers to training medical residents in counselling patients on obesity, nutrition, and physical activity (41) (44). Lack of knowledge and insufficient training were among these barriers (41)(44). Today's Residents are doctors of tomorrow, so teaching and training curriculums may need revision to close this gap (41). Insufficient training or poor healthcare providers' education has been cited by several studies as a significant barrier to incorporating lifestyle counselling into clinical practice (45). A group of researchers studied the 1356 final year medical students in seven UK universities through a questionnaire sent to them regarding knowledge and training in lifestyle medicine. Astonishing results appeared. Eighty percent (80%) stated that they did not receive any training in lifestyle medicine within the last two years, 76% wanted more lifestyle medicine teaching to be integrated in the medical school curriculum.

As with many studies, our study has some limitations. There were many female participants (171 female vs 93 male). Also, there were more nurses than physicians (158 nurses vs 106 physicians). There is a need for matching gender and occupation between categories to generalize the results. Family medicine speciality in Dubai is highly requested by female doctors and primary health care services recruited more female nurses than male, hence the number of females in both categories are more than males. The response rate (61.93%) was considered a strength for the study.

In conclusion, the results of the study showed the lack of knowledge particularly among nurses and the high attitude towards lifestyle medicine with no differences between nurses and physicians. There is a variation on ranking lifestyle medicine pillars between physicians and nurses. There was positive, moderate, and significant correlation between knowledge, age and positive, weak, and significant between means of knowledge and work duration. Future research and quality improvement projects (47) are recommended around lifestyle medicine implementation in Dubai Academic and Health Corporation – Primary health care.

Conflict of interest

The researcher is not aware of any conflicts of interest related to the subject of this study.

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Influence of Patient's Gender on Satisfaction with Access to Service and Quality of Care

Johar Abbas Khawaja ¹, Sahar Fatima Khawaja ², Gohar Abbas Khawaja ³, Rajab Ali Khawaja ⁴

(1) (MBBS, MD), Medical House Officer Liaquat National Hospital And Medical College Karachi

(2) (MBBS, FCPS-1) Medical House Officer Liaquat University Of Health Sciences, Jamshoro

(3) (MBBS) Medical House Officer Liaquat University Of Health Sciences, Jamshoro

(4) Consultant Family Medicine, King Saud Medical City, Riyadh

Corresponding author:

Dr Rajab Ali Khawaja,

Consultant Family Medicine, King Saud Medical City,

Riyadh, Saudi Arabia

Phone: # 00966502704266

Email: rajab99@hotmail.com

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Abstract

This Cross sectional study was conducted to assess the influence of gender on patient's satisfaction with a medical care received at family medicine clinics in a newly established hospital in Riyadh. Questionnaires were administered to 200 randomly select volunteer patients during January to March, 2022. A total of 148 anonymously completed questionnaires were returned to the investigator. Descriptive statistics were generated for demographic variables. The Likert Scale was used to determine the level of patient's satisfaction and the Mann-Whitney U test was used to determine the difference between the men and women. Results show that the overall level of patient satisfaction on a Likert scale from 1 to 5 was indicated by a mean score of 4.21 ± 1.0 for men and 4.35 ± 0.945 for women patients. The highest satisfaction by both men and women patients was with family physicians and the lowest for waiting time and availability of reading material in the waiting room. Women were more satisfied with the nursing services and environment of the waiting room, but it was not statistically significant. Mann-Whitney U test illustrates that the Patient's gender has no discernable impact on his or her ratings of satisfaction ($p > 0.5$) on a 26 items questionnaire

Keywords: patient's satisfaction; primary health care clinics; family medicine clinics; outpatient care; family physicians

Introduction

Patient satisfaction is defined as the degree of agreement between a patient's ideal and real care expectation (1). It is a key indicator to assess the quality of healthcare service worldwide. Understanding the factors that affect patient satisfaction is important as it may lead to the development and implementation of customized strategies and programs that meet both service provider and patient's requirements (2).

According to the Alma Ata declaration, the World Health Organization (WHO) declared "Health for All" and Primary Health Care (PHC) as a fundamental health care based on delivering integrated healthcare services of promotive, preventive, curative and rehabilitative aspects (3). The Government of Saudi Arabia in 1980 applied the WHO "Health for All" concept and considered PHC as the cornerstone and hence integrated all old dispensaries and maternal and child healthcare centers to PHCs for better and high quality health care services (4-5). Currently, the Ministry of Health (MOH) in Saudi Arabia is the key provider of health services with 287 hospitals (having 45,330 in-patient beds) and 2,212 PHCs throughout the Kingdom of Saudi Arabia (6).

Primary health care centers are the backbone of any health care system as they provide essential healthcare services to the general population. Saudi Arabia's National Transformation Plan 2030 aims to optimize the distribution of resources between PHCs and hospitals and therefore it is crucial to assess PHCs to meet the needs of the population (7).

Research on primary health care capacity in Saudi Arabia is limited and a standard outpatient satisfaction survey has not been developed in Saudi Arabia to compare the male with female satisfaction. Therefore, this survey was designed to investigate the relationship between gender and satisfaction with primary care visits and to identify issues of particular concern related to gender.

Subjects and Methods

This cross sectional study was conducted at family medicine clinics in a newly established, community based tertiary care hospital with 500 beds, in Riyadh. A systematic randomized sampling technique was used to select the participants irrespective of their age, gender, nationality, educational status, marital status or the level of their Bio-Psycho-social status. The questionnaire was pre tested, pre designed and well-structured with closed ended questions. Questions were written in both English and Arabic languages for ease of the participants and were administered to every 4th volunteer patient during the first quarter of 2022. Participants were informed about the importance of the study by the study researcher. The Questionnaire was divided into two main sections and contained 26 items to highlight the important issues related to interpersonal attitude, quality of care and accessibility to the service. The 5-point Likert Scale, ranging from "poor = 1 to excellent = 5" was used to assess each item. Various steps were taken to increase the content validity of questionnaire. The first step was a comprehensive review

of literature, the second was a pilot study of 35 participants and lastly all the participants were assured of confidence regarding anonymity and no identifying information was included in the questionnaire.

Statistical analysis

The Likert scale, ranging from 1-5 (1 = poor, 2 = fair, 3 = good, 4 = very good and 5 = excellent) was used to measure respondents' satisfaction by asking the extent to which they agree or disagree with a particular question or statement. Statistical Package for Social Science (SPSS-22) was used to analyze the data. To compare gender with Likert scale data, we used the Mann-Whitney U test (also known as the Wilcoxon rank-sum test). This non-parametric test is used to determine whether there is a significant difference between two independent groups (in this case, men and women) based on ordinal data (such as Likert scale responses), keeping p-value ≤ 0.05 as significant. Demographic data was analyzed and presented as descriptive and results were expressed as count (n), percentage (%) and mean $\pm$ SD.

Results

A total of 148 out of 200 participants returned the anonymously completed questionnaires to the investigator. Out of 148 participants, fifty-seven (38.5%) were men with mean age of 36.11 ± 15.05 years. Mean age of women participants was 38.21 ± 14.78 . The majority of the respondents refused to answer regarding their educational and job status (Table 1).

The questionnaire was divided into two parts with 26 questions/statements.

- 1). The first eleven questions/statements were related to pre-consultation process and available facilities (Table – 2a)
- 2). The last fifteen questions were about consultation process and overall patient satisfaction (Table – 2b)

Responses to the first part: Patients were not satisfied with the amount of reading material in the waiting room (Male 2.61 ± 1.60 Vs Female 3.13 ± 1.59 ; $p = 0.35$). Most of the patients were satisfied with the nursing attitude and etiquette (Men 4.05 ± 1.08 Vs women 4.22 ± 1.04 ; $p = 0.81$). There was no statistical difference between men and women respondent's satisfaction ($p = > 0.05$).

Responses to the second part: Both men and women respondents reported their highest level of satisfaction with the quality of care and services provided by doctors. Mean response was greater than 4.5 out of 5 for all the questions related to the consultation process and consultants.

When the response of individual items of the Likert scale was compared, none of the 26 items of Likert scale showed statistical difference among gender as a predicting factor in patient satisfaction level. (Table – 2a & 2b).

When items of Likert scale for areas of satisfaction were recorded, the mean and standard deviation for overall level of satisfaction for Men was 4.21 ± 1.0 compared to women 4.35 ± 0.945 . This shows no difference of patient's satisfaction on the basis of gender.

Table 1: Demographic Details of Participants

Characteristics	Male	Female	Overall
Gender	57 (38.5 %)	91 (61.5 %)	148 (100 %)
Age in years	36.11 ± 15.05	38.21 ± 14.78	37.40 ± 14.87
Education			
No response	16 (28.1 %)	43 (47.25 %)	59 (39.9%)
Illiterate	2 (3.51 %)	2 (2.2 %)	04 (2.7%)
Primary	2 (3.51 %)	4 (4.4 %)	06 (4.1%)
Secondary	6 (10.53 %)	15 (16.48 %)	21 (14.2%)
College	3 (5.26 %)	8 (8.79 %)	11 (7.4%)
University	28 (49.12 %)	19 (20.88 %)	47 (31.8%)
Job			
No response	15 (26.32 %)	47 (51.65 %)	62 (41.9%)
House wife	0 (0 %)	14 (15.38 %)	14 (9.5%)
Student	7 (12.28 %)	10 (10.99 %)	17 (11.5%)
Retired	4 (7 %)	3 (3.3 %)	07 (4.7%)
Jobless	1 (1.75 %)	1 (1.1 %)	02 (1.4%)
Managerial	6 (10.53 %)	0 (0 %)	06 (4.1%)
Professional	18 (31.58 %)	13 (14.29 %)	31 (20.9%)
Technician & associate professionals Service	3 (5.26 %)	1 (1.1 %)	04 (2.7%)
& sales worker	0 (0 %)	2 (2.2 %)	02 (1.4%)
Skilled agricultural, forestry and fishery worker	1 (1.75 %)	0 (0 %)	01 (0.7%)
Plant and machine operator and assemblers	2 (3.5 %)	0 (0 %)	02 (1.4%)

Variables	MALE						FEMALE						P-value
	Poor (1) n (%)	Fair (2) n (%)	Good (3) n (%)	V. good (4) n (%)	Excellent (5) n (%)	Mean $\pm$ SD	Poor (1) n (%)	Fair (2) n (%)	Good (3) n (%)	V. good (4) n (%)	Excellent (5) n (%)	Mean $\pm$ SD	
Easy to get an appointment	7 (58)	6 (46)	10 (42)	9 (33)	25 (35)	3.68 $\pm$ 1.44	5 (42)	7 (54)	14 (58)	18 (67)	47 (65)	4.04 $\pm$ 1.22	0.53
Easy to see a doctor of choice	3 (30)	9 (64)	15 (44)	9 (41)	21 (31)	3.63 $\pm$ 1.28	7 (70)	5 (36)	19 (56)	13 (59)	47 (69)	3.97 $\pm$ 1.29	0.17
Easy to get appointment at a desired time	8 (57)	4 (33)	15 (48)	6 (27)	24 (35)	3.6 $\pm$ 1.45	6 (43)	8 (67)	16 (52)	16 (73)	45 (65)	3.95 $\pm$ 1.28	0.28
Pleasant environment of waiting room	9 (64)	7 (54)	12 (44)	13 (38)	16 (27)	3.35 $\pm$ 1.42	5 (36)	6 (46)	15 (56)	21 (62)	44 (73)	4.02 $\pm$ 1.19	0.06
Enough seats in waiting room	4 (57)	8 (50)	7 (35)	9 (41)	28 (35)	3.89 $\pm$ 1.36	3 (43)	8 (50)	13 (65)	13 (59)	54 (65)	4.18 $\pm$ 1.17	0.64
Enough reading material in waiting room	23 (49)	7 (44)	7 (30)	9 (37)	11 (29)	2.61 $\pm$ 1.60	24 (51)	9 (56)	16 (70)	15 (63)	27 (71)	3.13 $\pm$ 1.59	0.35
Waiting time was satisfactory	8 (38)	9 (33)	11 (44)	14 (44)	15 (35)	3.33 $\pm$ 1.39	13 (62)	18 (67)	14 (56)	18 (56)	28 (65)	3.33 $\pm$ 1.45	0.87
Receptionist treated with patience & understanding	2 (29)	2 (22)	12 (46)	11 (46)	30 (37)	4.14 $\pm$ 1.09	5 (71)	7 (78)	14 (54)	13 (54)	52 (63)	4.10 $\pm$ 1.24	0.62
Nurses listened carefully	1 (33)	5 (50)	10 (42)	15 (43)	26 (34)	4.05 $\pm$ 1.08	2 (67)	5 (50)	14 (58)	20 (57)	50 (66)	4.22 $\pm$ 1.04	0.81
Nurses were very reassuring	2 (50)	7 (70)	8 (33)	15 (50)	25 (31)	3.95 $\pm$ 1.19	2 (50)	3 (30)	16 (67)	15 (50)	55 (69)	4.30 $\pm$ 1.02	0.09
Nurses answered all questions	2 (67)	8 (53)	8 (35)	11 (41)	28 (35)	3.96 $\pm$ 1.24	1 (33)	7 (47)	15 (65)	16 (59)	52 (65)	4.22 $\pm$ 1.05	0.56
Satisfaction items were answered on a 5 – point scale, with a higher score indicating greater satisfaction. Gender differences in means were tested by the Mann-Whitney U test, keeping p-value $\leq$ 0.05 as significant													

Table 2a: Patients Satisfaction from Family Medicine Department, according to their Gender

Table 2b: Patients Satisfaction from Family Medicine Department, according to their Gender

Variables	MALE										FEMALE										P-value
	Poor (1) n (%)	Fair (2) n (%)	Good (3) n (%)	V. good (4) n (%)	Excellent (5) n (%)	Mean ± SD	Poor (1) n (%)	Fair (2) n (%)	Good (3) n (%)	V. good (4) n (%)	Excellent (5) n (%)	Mean ± SD									
I do feel confident discussing problems with the doctor	2 (100)	0 (0)	3 (25)	11 (46)	41 (38)	4.56 ± 0.89	0 (0)	1 (100)	9 (75)	13 (54)	68 (62)	4.63 ± 0.71	0.26								
Doctor showed a genuine interest in my problem	1 (100)	1 (33)	2 (29)	7 (33)	46 (40)	4.68 ± 0.78	0 (0)	2 (67)	5 (71)	14 (67)	70 (60)	4.67 ± 0.68	0.59								
Doctor did not feel rushed during consultation	2 (50)	2 (40)	3 (23)	10 (40)	40 (40)	4.47 ± 1.0	2 (50)	3 (60)	10 (77)	15 (60)	61 (60)	4.43 ± 0.97	0.81								
Doctor was very careful to check everything important	1 (100)	1 (25)	3 (25)	10 (45)	42 (39)	4.6 ± 0.82	0 (0)	3 (75)	9 (75)	12 (55)	67 (61)	4.57 ± 0.81	0.51								
Doctor treated in a very friendly and courteous manner	0 (0)	0 (0)	3 (30)	10 (50)	44 (38)	4.72 ± 0.56	0 (0)	1 (100)	7 (70)	10 (50)	73 (62)	4.7 ± 0.66	0.55								
Doctor clearly explained what is wrong before giving any treatment	1 (100)	0 (0)	3 (30)	9 (60)	44 (36)	4.67 ± 0.74	0 (0)	1 (100)	7 (70)	6 (40)	77 (64)	4.75 ± 0.64	0.22								
Doctor explained at the level of my understanding	0 (0)	0 (0)	3 (27)	13 (50)	41 (37)	4.67 ± 0.58	0 (0)	1 (100)	8 (73)	13 (50)	69 (63)	4.65 ± 0.69	0.43								
Doctor requested necessary tests and explained them to me	0 (0)	0 (0)	4 (36)	9 (41)	44 (39)	4.7 ± 0.6	1 (100)	0 (0)	7 (64)	13 (59)	70 (61)	4.66 ± 0.72	0.87								
Doctor gave me good advice and treatment	1 (100)	0 (0)	4 (33)	8 (44)	44 (38)	4.65 ± 0.77	0 (0)	1 (100)	8 (67)	10 (56)	72 (62)	4.68 ± 0.68	0.62								
Doctor took care of my privacy and confidentiality	1 (100)	1 (50)	3 (27)	10 (43)	42 (38)	4.6 ± 0.82	0 (0)	1 (50)	8 (73)	13 (57)	69 (62)	4.65 ± 0.69	0.63								
Doctor respected my cultural and religious norms	1 (50)	0 (0)	4 (40)	11 (52)	41 (36)	4.6 ± 0.78	1 (50)	0 (0)	6 (60)	10 (48)	74 (64)	4.71 ± 0.69	0.53								
I think my doctor is competent and well trained	1 (50)	0 (0)	2 (25)	11 (46)	43 (38)	4.67 ± 0.72	1 (50)	1 (100)	6 (75)	13 (54)	70 (62)	4.65 ± 0.75	0.75								
I have confidence in my doctor	1 (50)	0 (0)	3 (27)	14 (56)	39 (36)	4.58 ± 0.76	1 (50)	1 (100)	8 (73)	11 (44)	70 (64)	4.63 ± 0.78	0.30								
I am satisfied with the medical care i received	1 (50)	2 (50)	6 (54)	11 (41)	37 (36)	4.42 ± 0.94	1 (50)	2 (50)	5 (46)	16 (59)	67 (64)	4.6 ± 0.79	0.74								
I am satisfied with the consultation time	1 (50)	0 (0)	3 (30)	12 (44)	41 (38)	4.61 ± 0.75	1 (50)	1 (100)	7 (70)	15 (56)	67 (62)	4.6 ± 0.77	0.83								
OVERALL SATISFACTION ON 26 ITEMS						4.21 ± 1.0	OVERALL SATISFACTION ON 26 ITEMS						4.35 ± 0.945	> 0.05							
Satisfaction items were answered on a 5 – point scale, with a higher score indicating greater satisfaction. Gender differences in means were tested by the Mann-Whitney U test, keeping p-value ≤ 0.05 as significant																					

Discussion

Clinically speaking, men and women do have significantly different patient service needs. Unexpectedly, due to cultural, religious and social reasons in Saudi Arabia, analysis of this survey revealed no substantive difference between men and women in their rating of various aspects of primary care visits. However, findings suggest that there is a room for improvement in the measurement of patient satisfaction.

Studies on the effect of gender are contradictory, with some studies showing either gender less satisfied and other studies are showing the opposite. The present study found no gender difference in the satisfaction level to family medicine clinics of a tertiary care hospital and is consistent with the survey done in PHCs of Qatar(8), Riyadh(9-10), Taif(11), Abha(12) and Makkah(13). Also findings by other various studies showed no significant association of satisfaction between men and women e.g. study by Weisman(14), study in 5 adult outpatient clinics of a tertiary care hospital in Nigeria(15), study in two hospitals of Lahore, Pakistan(16) and a study of Swanson et al. in a community sample of patients with depression(17).

On the contrary, women patients from primary health care center's services in Taif (Saudi Arabia) were more satisfied than men(18) ($p = 0.047$); another study from Riyadh also shows that women participants had a higher level of satisfaction from primary health care services as compared with men(19) ($p = 0.007$). Patient satisfaction in PHCs in Al Ahsa (Saudi Arabia) shows that women gave significantly lower rating on satisfaction score than men on communication and nursing care (20). In Majmaah city (Saudi Arabia), men were satisfied more than women (84.3% Vs 79.8%) about PHC center's services (21). Another study of 5,857 patients who after their admission were contacted through phone call, had mixed opinions. Women expressed significantly less satisfaction related to nursing care and communication but no difference in satisfaction was found between the genders for the two questions regarding physicians (22). A psychiatric patient's satisfaction study in Qatar shows that the level of men's satisfaction was significantly higher than women(23). A study from Kuwait(24) shows that women were more satisfied (3.27) than men (2.99).

Overall satisfaction of patients with the service quality in Qassim region (Saudi Arabia), revealed positive experiences on all dimensions, although private hospitals were better than public sector hospitals(25). Another study of 536,406 participants from 2,390 primary health care centers under the Saudi Ministry of Health (26) revealed overall patient's satisfaction score of 4.2 out of 5, which is also consistent with the present study.

Analyzing patients satisfaction surveys for gender differences and developing more gender sensitive measurement tools are important steps to improve the quality of healthcare. Tuning in to genders' concerns about their healthcare will enable us both to develop more sensitive measurement tools and to identify the healthcare delivery models that optimize patient satisfaction for both genders

Conclusion

The overall satisfaction level in the present study didn't show any significance between both genders. However, there were some areas with less satisfaction that need to be rectified.

Patient feedback by surveys or interviews is extremely important to design hospital policies since it helps improve the service and quality in healthcare institutions. The results of this survey will assist the healthcare administrators in identifying the major areas related to quality and service issues encountered by the patients and rectify those issues to improve overall healthcare quality and patient satisfaction.

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Conflicts of Interest:

The authors declare no conflicts of interest regarding the publication of this paper.

Ethics:

Authors of this study confirms that the written informed consent was obtained from all the participants. Participation in this study was voluntary and the participants were assured of confidentiality and anonymity.

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Anti-inflammatory dose of aspirin plus low-dose warfarin may increase the leg performance in Buerger's disease

Mehmet Rami Helvaci¹, Mutlu Cihan Daglioglu², Hulya Halici³, Cigdem Sen⁴, Alper Sevinc¹, Celaletdin Camci¹, Abdulrazak Abyad⁵, Lesley Pocock⁶

- (1) Specialist of Internal Medicine, MD, Turkey
 (2) Specialist of Ophthalmology, MD, Turkey
 (3) Manager of Writing and Statistics, Turkey
 (4) Specialist of Emergency Medicine, MD, Turkey
 (5) Middle-East Academy for Medicine of Aging, MD, Lebanon
 (6) medi-WORLD International, Australia

Corresponding author:

Prof Dr Mehmet Rami Helvaci, MD
 07400, ALANYA, Turkey
 Phone: 00-90-506-4708759
 Email: mramihelvaci@hotmail.com

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Abstract

Background: After excess weight, smoking may be the second most common cause of vasculitis all over the world.

Methods: All patients with sickle cell diseases (SCD) were studied.

Results: We included 222 males and 212 females with similar ages (30.8 vs 30.3 years, $p>0.05$, respectively). Smoking (23.8% vs 6.1%, $p<0.001$), alcohol (4.9% vs 0.4%, $p<0.001$), transfused red blood cells (RBC) in their lives (48.1 vs 28.5 units, $p=0.000$), disseminated teeth losses (5.4% vs 1.4%, $p<0.001$), ileus (7.2% vs 1.4%, $p<0.001$), chronic obstructive pulmonary disease (COPD) (25.2% vs 7.0%, $p<0.001$), cirrhosis (8.1% vs 1.8%, $p<0.001$), leg ulcers (19.8% vs 7.0%, $p<0.001$), clubbing (14.8% vs 6.6%, $p<0.001$), coronary heart disease (18.0% vs 13.2%, $p<0.05$), chronic renal disease (9.9% vs 6.1%, $p<0.05$), and stroke (12.1% vs 7.5%, $p<0.05$) were higher in males.

Conclusion: The hardened RBC-induced capillary endothelial damage initiates at birth, and terminates with leg ulcers-like atherosclerotic endpoints even at childhood in SCD. Similarly, smoking causes a systemic inflammation on vascular endothelium terminating with an accelerated atherosclerosis-induced end-organ insufficiencies in whole body. Its atherosclerotic effect is the most obvious in the COPD and Buerger's disease, probably due to the higher concentrations of toxic substances in lungs and pooling of blood in lower extremities. Since the already developed vascular stenoses are irreversible in Buerger's disease, anti-inflammatory dose of aspirin plus low-dose warfarin may be the best treatment regimen to protect fingers and toes from acute infarctions. The regimen may even increase the leg performance by preventing acute ischemias in microcirculation of the legs.

Key words: Buerger's disease, smoking, leg performance, sickle cell diseases, leg ulcers, anti-inflammatory dose of aspirin, low-dose warfarin

Introduction

Chronic endothelial damage may be the major cause of aging and death by causing end-organ failures in human being (1). Much higher blood pressures (BP) of the afferent vasculature may be the major accelerating factor by causing recurrent injuries on vascular endothelial cells. Probably, whole afferent vasculature including capillaries are mainly involved in the process. Thus the term of venosclerosis is not as famous as atherosclerosis in the literature. Due to the chronic endothelial damage, inflammation, edema, and fibrosis, vascular walls thicken, their lumens narrow, and they lose their elastic natures, those eventually reduce blood supply to the terminal organs, and increase systolic and decrease diastolic BP further. Some of the well-known accelerating factors of the inflammatory process are physical inactivity, sedentary lifestyle, animal-rich diet, smoking, alcohol, overweight, chronic inflammations, prolonged infections, and cancers for the development of terminal consequences including obesity, hypertension (HT), diabetes mellitus (DM), cirrhosis, chronic obstructive pulmonary disease (COPD), coronary heart disease (CHD), chronic renal disease (CRD), stroke, peripheral artery disease (PAD), mesenteric ischemia, osteoporosis, dementia, early aging, and premature death (2, 3). Although early withdrawal of the accelerating factors can delay terminal consequences, after development of obesity, HT, DM, cirrhosis, COPD, CRD, CHD, stroke, PAD, mesenteric ischemia, osteoporosis, and dementia-like end-organ insufficiencies and aging, the endothelial changes can not be reversed due to their fibrotic natures, completely. The accelerating factors and terminal consequences of the vascular process are researched under the titles of metabolic syndrome, aging syndrome, and accelerated endothelial damage syndrome in the literature (4-6). On the other hand, sickle cell diseases (SCD) are chronic inflammatory and highly destructive processes on vascular endothelium, initiated at birth and terminated with an advanced atherosclerosis-induced end-organ insufficiencies in much earlier ages of life (7, 8). Hemoglobin S causes loss of elastic and biconcave disc shaped structures of red blood cells (RBC). Probably loss of elasticity instead of shape is the major problem because sickling is rare in peripheral blood samples of the cases with associated thalassemia minors (TM), and human survival is not affected in hereditary spherocytosis or elliptocytosis. Loss of elasticity is present during whole lifespan, but exaggerated with inflammations, infections, and additional stresses of the body. The hardened RBC-induced chronic endothelial damage, inflammation, edema, and fibrosis terminate with tissue hypoxia all over the body (9). As a difference from other causes of chronic endothelial damage, SCD keep vascular endothelium particularly at the capillary level (10, 11), since the capillary system is the main distributor of the hardened RBC into the tissues. The hardened RBC-induced chronic endothelial damage builds up an advanced atherosclerosis in much earlier ages of life. Vascular narrowings and occlusions-induced tissue ischemia and end-organ insufficiencies are the final consequences, so the mean life expectancy is decreased by 25 to 30 years for both genders in the SCD (8).

Material and Methods

The study was performed in Medical Faculty of the Mustafa Kemal University between March 2007 and June 2016. All patients with the SCD were included. The SCD were diagnosed with the hemoglobin electrophoresis performed via high performance liquid chromatography (HPLC). Medical histories including smoking, alcohol, acute painful crises per year, transfused units of RBC in their lives, leg ulcers, stroke, surgical operations, deep venous thrombosis (DVT), epilepsy, and priapism were learnt. Patients with a history of one pack-year were accepted as smokers, and one drink-year were accepted as drinkers. A complete physical examination was performed by the Same Internist, and patients with disseminated teeth losses (<20 teeth present) were detected. Patients with an acute painful crisis or any other inflammatory event were treated at first, and the laboratory tests and clinical measurements were performed on the silent phase. Check up procedures including serum iron, iron binding capacity, ferritin, creatinine, liver function tests, markers of hepatitis viruses A, B, and C, a posterior-anterior chest x-ray film, an electrocardiogram, a Doppler echocardiogram both to evaluate cardiac walls and valves, and to measure systolic BP of pulmonary artery, an abdominal ultrasonography, a venous Doppler ultrasonography of the lower limbs, a computed tomography (CT) of brain, and a magnetic resonance imaging (MRI) of hips were performed. Other bones for avascular necrosis were scanned according to the patients' complaints. So avascular necrosis of bones was diagnosed by means of MRI (12). Associated TM were detected with serum iron, iron binding capacity, ferritin, and hemoglobin electrophoresis performed via HPLC, since the SCD with associated TM show a milder clinic than the sickle cell anemia (SCA) (Hb SS) alone (13). Systolic BP of the pulmonary artery of 40 mmHg or higher are accepted as pulmonary hypertension (PHT) (14). The criterion for diagnosis of COPD is a post-bronchodilator forced expiratory volume in one second/forced vital capacity of lower than 70% (15). Acute chest syndrome (ACS) is diagnosed clinically with the presence of new infiltrates on chest x-ray film, fever, cough, sputum production, dyspnea, or hypoxia (16). An x-ray film of abdomen in upright position was taken just in patients with abdominal distention or discomfort, vomiting, obstipation, or lack of bowel movement, and ileus was diagnosed with gaseous distention of isolated segments of bowel, vomiting, obstipation, cramps, and with the absence of peristaltic activity. CRD is diagnosed with a persistent serum creatinine level of 1.3 mg/dL or higher in males and 1.2 mg/dL or higher in females. Cirrhosis is diagnosed with physical examination findings, laboratory parameters, and ultrasonographic evaluation. Digital clubbing is diagnosed with the ratio of distal phalangeal diameter to interphalangeal diameter of higher than 1.0, and with the presence of Schamroth's sign (17, 18). An exercise electrocardiogram is performed in cases with an abnormal electrocardiogram and/or angina pectoris. Coronary angiography is taken for the exercise electrocardiogram positive cases. So CHD was diagnosed either angiographically or with the Doppler echocardiographic findings as movement disorders in the

cardiac walls. Rheumatic heart disease is diagnosed with the echocardiographic findings, too. Stroke is diagnosed by the CT of brain. Sickle cell retinopathy is diagnosed with ophthalmologic examination in patients with visual complaints. Mann-Whitney U test, Independent-Samples t test, and comparison of proportions were used as the methods of statistical analyses.

Results

The study included 222 males and 212 females with similar ages (30.8 vs 30.3 years, $p>0.05$, respectively). Prevalences of associated TM were similar in both genders, too (72.5% vs 67.9%, $p>0.05$, respectively). Smoking (23.8% vs 6.1%) and alcohol (4.9% vs 0.4%) were higher in males ($p<0.001$ for both) (Table 1). Transfused units of RBC in their lives (48.1 vs 28.5, $p=0.000$), disseminated teeth losses (5.4% vs 1.4%, $p<0.001$), ileus (7.2% vs 1.4%, $p<0.001$), cirrhosis (8.1% vs 1.8%, $p<0.001$), leg ulcers (19.8% vs 7.0%, $p<0.001$), digital clubbing (14.8% vs 6.6%, $p<0.001$), CHD (18.0% vs 13.2%, $p<0.05$), CRD (9.9% vs 6.1%, $p<0.05$), COPD (25.2% vs 7.0%, $p<0.001$), and stroke (12.1% vs 7.5%, $p<0.05$) were all higher in males. Although the mean age of mortality (30.2 vs 33.3 years) was lower in males, the difference was not significant, probably due to the small sample size of the study cases (Table 2). On the other hand, mean ages of the other atherosclerotic consequences in the SCD were shown in Table 3.

Table 1: Characteristic features of the study cases

Variables	Male patients with SCD*	p-value	Female patients with SCD
Prevalence	51.1% (222)	Ns†	48.8% (212)
Mean age (year)	30.8 ± 10.0 (5-58)	Ns	30.3 ± 9.9 (8-59)
Associated TM‡	72.5% (161)	Ns	67.9% (144)
<u>Smoking</u>	<u>23.8% (53)</u>	<u><0.001</u>	<u>6.1% (13)</u>
<u>Alcoholism</u>	<u>4.9% (11)</u>	<u><0.001</u>	<u>0.4% (1)</u>

Table 2: Associated pathologies of the study cases

Variables	Male patients with SCD*	p-value	Female patients with SCD
Painful crises per year	5.0 ± 7.1 (0-36)	Ns†	4.9 ± 8.6 (0-52)
<u>Transfused units of RBC‡</u>	<u>48.1 ± 61.8 (0-434)</u>	<u>0.000</u>	<u>28.5 ± 35.8 (0-206)</u>
<u>Disseminated teeth losses (<20 teeth present)</u>	<u>5.4% (12)</u>	<u><0.001</u>	<u>1.4% (3)</u>
<u>COPD§</u>	<u>25.2% (56)</u>	<u><0.001</u>	<u>7.0% (15)</u>
<u>Ileus</u>	<u>7.2% (16)</u>	<u><0.001</u>	<u>1.4% (3)</u>
<u>Cirrhosis</u>	<u>8.1% (18)</u>	<u><0.001</u>	<u>1.8% (4)</u>
<u>Leg ulcers</u>	<u>19.8% (44)</u>	<u><0.001</u>	<u>7.0% (15)</u>
<u>Digital clubbing</u>	<u>14.8% (33)</u>	<u><0.001</u>	<u>6.6% (14)</u>
<u>CHD¶</u>	<u>18.0% (40)</u>	<u><0.05</u>	<u>13.2% (28)</u>
<u>CRD**</u>	<u>9.9% (22)</u>	<u><0.05</u>	<u>6.1% (13)</u>
<u>Stroke</u>	<u>12.1% (27)</u>	<u><0.05</u>	<u>7.5% (16)</u>
PHT***	12.6% (28)	Ns	11.7% (25)
Autosplenectomy	50.4% (112)	Ns	53.3% (113)
DVT**** and/or varices and/or telangiectasias	9.0% (20)	Ns	6.6% (14)
Rheumatic heart disease	6.7% (15)	Ns	5.6% (12)
Avascular necrosis of bones	24.3% (54)	Ns	25.4% (54)
Sickle cell retinopathy	0.9% (2)	Ns	0.9% (2)
Epilepsy	2.7% (6)	Ns	2.3% (5)
ACS*****	2.7% (6)	Ns	3.7% (8)
Mortality	7.6% (17)	Ns	6.6% (14)
Mean age of mortality (year)	30.2 ± 8.4 (19-50)	Ns	33.3 ± 9.2 (19-47)

*Sickle cell diseases †Nonsignificant (p>0.05) ‡Red blood cells §Chronic obstructive pulmonary disease ¶Coronary heart disease **Chronic renal disease ***Pulmonary hypertension ****Deep venous thrombosis *****Acute chest syndrome

Table 3: Mean ages of the consequences of the sickle cell diseases

Variables	Mean age (year)
Ileus	29.8 ± 9.8 (18-53)
Hepatomegaly	30.2 ± 9.5 (5-59)
ACS*	30.3 ± 10.0 (5-59)
Sickle cell retinopathy	31.5 ± 10.8 (21-46)
Rheumatic heart disease	31.9 ± 8.4 (20-49)
Autosplenectomy	32.5 ± 9.5 (15-59)
Disseminated teeth losses (<20 teeth present)	32.6 ± 12.7 (11-58)
Avascular necrosis of bones	32.8 ± 9.8 (13-58)
Epilepsy	33.2 ± 11.6 (18-54)
Priapism	33.4 ± 7.9 (18-51)
Left lobe hypertrophy of the liver	33.4 ± 10.7 (19-56)
Stroke	33.5 ± 11.9 (9-58)
COPD†	33.6 ± 9.2 (13-58)
PHT‡	34.0 ± 10.0 (18-56)
Leg ulcers	35.3 ± 8.8 (17-58)
Digital clubbing	35.4 ± 10.7 (18-56)
CHD§	35.7 ± 10.8 (17-59)
DVT¶ and/or varices and/or telangiectasias	37.0 ± 8.4 (17-50)
Cirrhosis	37.0 ± 11.5 (19-56)
CRD**	39.4 ± 9.7 (19-59)

*Acute chest syndrome †Chronic obstructive pulmonary disease ‡Pulmonary hypertension
§Coronary heart disease ¶Deep venous thrombosis **Chronic renal disease

Discussion

After excess weight, smoking may be the second most common cause of disseminated vasculitis all over the world. It may cause a systemic inflammation on vascular endothelium terminating with an accelerated atherosclerosis-induced end-organ insufficiencies in whole body (19). Its atherosclerotic effect is the most obvious in the COPD and Buerger's disease (20). Buerger's disease is an obliterative vasculitis characterized by inflammatory changes in the small and medium-sized arteries and veins, and it has never been documented in the absence of smoking. Its characteristic findings are acute inflammation, stenoses and occlusions of arteries and veins, and involvements of hands and feet. It is usually seen in young males between the ages of 20 and 40 years. Claudication may be the most common initial symptom in Buerger's disease. It is an intense pain caused by insufficient blood flow during exercise in feet and hands but it may even develop at rest in severe cases. It typically begins in extremities but it may also radiate to more central areas in advanced cases. Numbness or tingling of the limbs is also common. Raynaud's phenomenon may also be seen in which fingers or toes turn a white color upon exposure to cold. Skin ulcerations and gangrene of fingers or toes are the final consequences. Gangrene of fingertips may even need amputation. Unlike many other forms of vasculitis, Buerger's disease does not keep

other organs with unknown reasons, yet. Similar to the venous ulcers, diabetic ulcers, leg ulcers of the SCD, digital clubbing, onychomycosis, and delayed wound and fracture healings of the lower extremities, pooling of blood due to the gravity may be important in the development of Buerger's disease, particularly in the lower extremities. Angiograms of upper and lower extremities are diagnostic for Buerger's disease. In angiogram, stenoses and occlusions in multiple areas of arms and legs are seen. In order to rule out some other forms of vasculitis by excluding involvement of vascular regions atypical for Buerger's disease, it is sometimes necessary to perform angiograms of other body regions. Skin biopsies are rarely required, since a biopsy site near a poorly perfused area will not heal, completely. Association of Buerger's disease with tobacco use, particularly cigarette smoking is clear. Although most patients are heavy smokers, some cases with limited smoking history have also been reported. The disease can also be seen in users of smokeless tobacco. The limited smoking history of some patients may support the hypothesis that Buerger's disease may be an autoimmune reaction triggered by some constituent of tobacco. Although the only treatment way is complete cessation of smoking, the already developed stenoses and occlusions are irreversible. Due to the clear evidence of inflammation in this disorder, anti-inflammatory dose of aspirin plus low-dose warfarin may probably be effective to prevent microvascular infarctions in fingers or toes at the

moment. On the other hand, fasting plasma glucose and high density lipoproteins may be negative whereas triglycerides, low density lipoproteins (LDL), erythrocyte sedimentation rate, and C-reactive protein may be positive acute phase reactants indicating such inflammatory effects of smoking on vascular endothelium (21). Similarly, it is not an unexpected result that smoking was associated with the lower values of body mass index (BMI) due to the systemic inflammatory effects on vascular endothelium (22). In another definition, smoking causes a chronic inflammation in human body (23). Additionally, some evidences revealed an increased heart rate just after smoking even at rest (24). Nicotine supplied by patch after smoking cessation decreased caloric intake in a dose-related manner (25). According to an animal study, nicotine may lengthen intermeal time, and decrease amount of meal eaten (26). Smoking may be associated with a postcessation weight gain, but the risk is the highest during the first year, and decreases with the following years (27). Although the CHD was detected with similar prevalences in both genders, prevalences of smoking and COPD were higher in males against the higher prevalences of white coat hypertension, BMI, LDL, triglycerides, HT, and DM in females (28). Beside that the prevalence of myocardial infarction is increased three-fold in men and six-fold in women who smoked at least 20 cigarettes per day (29). In another word, smoking may be more dangerous for women about the atherosclerotic endpoints probably due to the higher BMI in them. Several toxic substances found in the cigarette smoke get into the circulation, and cause the vascular endothelial inflammation in various organ systems of the body. For example, smoking is usually associated with depression, irritable bowel syndrome (IBS), chronic gastritis, hemorrhoids, and urolithiasis in the literature (30). There may be several underlying mechanisms to explain these associations (31). First of all, smoking may have some antidepressant properties with several potentially lethal side effects. Secondly, smoking-induced vascular endothelial inflammation may disturb epithelial functions for absorption and excretion in the gastrointestinal and genitourinary tracts which may terminate with urolithiasis, loose stool, diarrhea, and constipation. Thirdly, diarrheal losses-induced urinary changes may even cause urolithiasis (32). Fourthly, smoking-induced sympathetic nervous system activation may cause motility problems in the gastrointestinal and genitourinary tracts terminating with the IBS and urolithiasis. Eventually, immunosuppression secondary to smoking-induced vascular endothelial inflammation may even terminate with the gastrointestinal and genitourinary tract infections causing loose stool, diarrhea, and urolithiasis, because some types of bacteria can provoke urinary supersaturation, and modify the environment to form crystal deposits in the urine. Actually, 10% of urinary stones are struvite stones which are built by magnesium ammonium phosphate produced during infections with the bacteria producing urease. Parallel to the results above, urolithiasis was detected in 17.9% of cases with the IBS and 11.6% of cases without in the other study ($p<0.01$) (30).

Leg ulcers are seen in 10% to 20% of the SCD (33), and the ratio was 13.5% in the present study. Its prevalence increases with aging, male gender, and SCA (34). Similarly, its ratio was higher in males (19.8% vs 7.0%, $p<0.001$), and mean age of the leg ulcer cases was higher than the remaining patients (35.3 vs 29.8 years, $p<0.000$) in the present study. The leg ulcers have an intractable nature, and around 97% of them relapse in a period of one year (33). Similar to Buerger's disease, the leg ulcers occur in the distal segments of the body with a lesser collateral blood flow (33). The hardened RBC-induced chronic endothelial damage, inflammation, edema, and fibrosis at the capillaries may be the major causes (34). Prolonged exposure to the hardened bodies due to the pooling of blood in the lower extremities may also explain the leg but not arm ulcers in the SCD. The hardened RBC-induced venous insufficiencies may also accelerate the process by pooling of causative bodies in the legs, and vice versa. Pooling of blood may also be important for the development of venous ulcers, diabetic ulcers, Buerger's disease, digital clubbing, and onychomycosis in the lower extremities. Furthermore, pooling of blood may be the cause of delayed wound and fracture healings in the lower extremities, again. Smoking and alcohol may also have some additional atherosclerotic effects on the leg ulcers in males. Hydroxyurea is the first drug that was approved by Food and Drug Administration in the SCD (35). It is an orally-administered, cheap, safe, and effective drug that blocks cell division by suppressing formation of deoxyribonucleotides which are the building blocks of DNA (11). Its main action may be the suppression of hyperproliferative WBC and PLT in the SCD (36). Although presence of a continuous damage of hardened RBC on vascular endothelium, severity of the destructive process is probably exaggerated by the patients' own immune systems. Similarly, lower WBC counts were associated with lower crises rates, and if a tissue infarct occurs, lower WBC counts may decrease severity of pain and tissue damage (37). According to our experiences, prolonged resolution of leg ulcers with hydroxyurea may also suggest that the ulcers may be secondary to increased WBC and PLT counts-induced exaggerated capillary endothelial inflammation and edema instead of the fibrosis, yet.

Acute painful crises are the most disabling symptoms of the SCD. Although some authors reported that pain itself may not be life threatening directly, infections, medical or surgical emergencies, or emotional stress are the most common precipitating factors of the crises (38). The increased basal metabolic rate during such stresses aggravates the sickling, capillary endothelial damage, inflammation, edema, tissue hypoxia, and multiorgan insufficiencies. So the risk of mortality is much higher during the crises. Actually, each crisis may complicate with the following crises by leaving significant sequelae on the capillary endothelial system all over the body. After a period of time, the sequelae may terminate with sudden end-organ failures and death during a final acute painful crisis that may even be silent, clinically. Similarly, after a 20-year experience on such patients, the deaths seem sudden and unexpected events in the SCD. Unfortunately, most of

the deaths develop just after the hospital admission, and majority of them are patients without hydroxyurea therapy (39, 40). Rapid RBC supports are usually life-saving for such patients, although preparation of RBC units for transfusion usually takes time. Beside that RBC supports in emergencies become much more difficult in terminal cases due to the repeated transfusions-induced blood group mismatch. Actually, transfusion of each unit of RBC complicates the following transfusions by means of the blood subgroup mismatch. Due to the significant efficacy of hydroxyurea therapy, RBC transfusions should be kept just for acute events and emergencies in the SCD (39, 40). According to our experiences, simple and repeated transfusions are superior to RBC exchange in the SCD (41, 42). First of all, preparation of one or two units of RBC suspensions in each time rather than preparation of six units or higher provides time to clinicians to prepare more units by preventing sudden death of such high-risk patients. Secondly, transfusions of one or two units of RBC suspensions in each time decrease the severity of pain, and relax anxiety of the patients and their relatives since RBC transfusions probably have the strongest analgesic effects during the crises (43). Actually, the decreased severity of pain by transfusions also indicates the decreased severity of inflammation all over the body. Thirdly, transfusions of lesser units of RBC suspensions in each time by means of the simple transfusions will decrease transfusion-related complications including infections, iron overload, and blood group mismatch in the future. Fourthly, transfusion of RBC suspensions in the secondary health centers may prevent some deaths developed during the transport to the tertiary centers for the exchange. Finally, cost of the simple and repeated transfusions on insurance system is much lower than the exchange that needs trained staff and additional devices. On the other hand, pain is the result of complex and poorly understood interactions between RBC, white blood cells (WBC), platelets (PLT), and endothelial cells, yet. Whether leukocytosis contributes to the pathogenesis by releasing cytotoxic enzymes is unknown. The adverse actions of WBC on endothelium are of particular interest with regard to the cerebrovascular diseases in the SCD. For example, leukocytosis even in the absence of any infection was an independent predictor of the severity of the SCD (44), and it was associated with the risk of stroke in a cohort of Jamaican patients (45). Disseminated tissue hypoxia, releasing of inflammatory mediators, bone infarctions, and activation of afferent nerves may take role in the pathophysiology of the intolerable pain. Because of the severity of pain, narcotic analgesics are usually required to control them (46), but according to our practice, simple and repeated RBC transfusions may be highly effective both to relieve pain and to prevent sudden death that may develop secondary to multiorgan failures on the chronic inflammatory background of the SCD.

Hydroxyurea may be the only life-saving drug for the treatment of the SCD. It interferes with the cell division by blocking the formation of deoxyribonucleotides by means of inhibition of ribonucleotide reductase. The deoxyribonucleotides are the building blocks of DNA. Hydroxyurea mainly affects hyperproliferating cells.

Although the action way of hydroxyurea is thought to be the increase in gamma-globin synthesis for fetal hemoglobin (Hb F), its main action may be the suppression of leukocytosis and thrombocytosis by blocking the DNA synthesis in the SCD (47, 48). By this way, the chronic inflammatory and destructive process of the SCD is suppressed with some extent. Due to the same action way, hydroxyurea is also used in moderate and severe psoriasis to suppress hyperproliferating skin cells. As in the viral hepatitis cases, although presence of a continuous damage of sickle cells on the capillary endothelium, the severity of destructive process is probably exaggerated by the patients' own WBC and PLT. So suppression of proliferation of them may limit the endothelial damage-induced edema, ischemia, and infarctions in whole body (49). Similarly, final Hb F levels in hydroxyurea users did not differ from their pretreatment levels (37). The Multicenter Study of Hydroxyurea (MSH) studied 299 severely affected adults with the SCA, and compared the results of patients treated with hydroxyurea or placebo (50). The study particularly researched effects of hydroxyurea on painful crises, ACS, and requirement of blood transfusion. The outcomes were so overwhelming in the favour of hydroxyurea that the study was terminated after 22 months, and hydroxyurea was initiated for all patients. The MSH also demonstrated that patients treated with hydroxyurea had a 44% decrease in hospitalizations (50). In multivariable analyses, there was a strong and independent association of lower neutrophil counts with the lower crisis rates (50). But this study was performed just in severe SCA cases alone, and the rate of painful crises was decreased from 4.5 to 2.5 per year (50). Whereas we used all subtypes of the SCD with all clinical severity, and the rate of painful crises was decreased from 10.3 to 1.7 per year ($p < 0.000$) with an additional decreased severity of them (7.8/10 vs 2.2/10, $p < 0.000$) in the previous study (39). Parallel to our results, adult patients using hydroxyurea for frequent painful crises appear to have reduced mortality rate after a 9-year follow-up period (51). Although the underlying disease severity remains critical to determine prognosis, hydroxyurea may also decrease severity of disease and prolong survival (51). The complications start to be seen even in infancy in the SCD. For example, infants with lower hemoglobin values were more likely to have a higher incidence of clinical events such as ACS, painful crises, and lower neuropsychological scores, and hydroxyurea reduced the incidences of them (52). Hydroxyurea therapy in early years of life may protect splenic function, improve growth, and prevent end-organ insufficiencies. Transfusion programmes can also reduce all of the complications, but transfusions carry many risks including infections, iron overload, and development of allo-antibodies causing subsequent transfusions difficult.

Aspirin is a member of nonsteroidal anti-inflammatory drugs (NSAID) used to reduce pain, fever, inflammation, and acute thromboembolic events. Although aspirin has similar anti-inflammatory effects with the other NSAID, it also suppresses the normal functions of PLT, irreversibly. This property causes aspirin being different from other NSAID, which are reversible inhibitors. Aspirin acts as an acetylating agent where an acetyl group is

covalently attached to a serine residue in the active site of the cyclooxygenase (COX) enzyme. Aspirin's ability to suppress the production of prostaglandins (PG) and thromboxanes (TX) is due to its irreversible inactivation of the COX enzyme required for PG and TX synthesis. PG are the locally produced hormones with some diverse effects, including the transmission of pain into the brain and modulation of the hypothalamic thermostat and inflammation in the body. TX are responsible for the aggregation of PLT to form blood clots. In another definition, low-dose aspirin use irreversibly blocks the formation of TXA₂ in the PLT, producing an inhibitory effect on the PLT aggregation during whole lifespan of the affected PLT (8-9 days). Since PLT do not have nucleus and DNA, they are unable to synthesize new COX enzyme once aspirin has inhibited the enzyme. The antithrombotic property of aspirin is useful to reduce the incidences of myocardial infarction, transient ischemic attack, and stroke (53). Heart attacks are caused primarily by blood clots, and low-dose of aspirin is seen as an effective medical intervention to prevent a second myocardial infarction (54). According to the literature, aspirin may also be effective in prevention of colorectal cancers (55). On the other hand, aspirin has some side effects including gastric ulcers, gastric bleeding, worsening of asthma, and Reye syndrome in childhood and adolescence. Due to the risk of Reye syndrome, the US Food and Drug Administration recommends that aspirin or aspirin-containing products should not be prescribed for febrile patients under the age of 12 years (56). Eventually, the general recommendation to use aspirin in children has been withdrawn, and it was only recommended for Kawasaki disease (57). Reye syndrome is a rapidly worsening brain disease (57). The first detailed description of Reye syndrome was in 1963 by an Australian pathologist, Douglas Reye (58). The syndrome mostly affects children, but it can only affect fewer than one in a million children a year (58). Symptoms of Reye syndrome may include personality changes, confusion, seizures, and loss of consciousness (57). Although the liver toxicity typically occurs in the syndrome, jaundice is usually not seen with it, but the liver is enlarged in most cases (57). Although the death occurs in 20-40% of affected cases, about one third of survivors get a significant degree of brain damage (57). The cause of Reye syndrome is unknown (58). It usually starts just after recovery from a viral infection, such as influenza or chicken pox. About 90% of cases in children are associated with an aspirin use (58, 59). Inborn errors of metabolism are also the other risk factors, and the genetic testing for inborn errors of metabolism became available in developed countries in the 1980s (57). When aspirin use was withdrawn for children in the US and UK in the 1980s, a decrease of more than 90% in rates of Reye syndrome was seen (58). Early diagnosis improves outcomes, and treatment is supportive. Mannitol may be used in cases with the brain swelling (58). Due to the very low risk of Reye syndrome but much higher risk of death due to the SCD in children, aspirin should be added both into the acute and chronic phase treatments with an anti-inflammatory dose even in childhood in the SCD (60).

Warfarin is an anticoagulant, and first came into large-scale commercial use in 1948 as a rat poison. It was formally approved as a medication to treat blood clots in human being by the U.S. Food and Drug Administration in 1954. In 1955, warfarin's reputation as a safe and acceptable treatment was bolstered when President Dwight David Eisenhower was treated with warfarin following a massive and highly publicized heart attack. Eisenhower's treatment kickstarted a transformation in medicine whereby CHD, arterial plaques, and ischemic strokes were treated and protected against by using anticoagulants such as warfarin. Warfarin is found in the List of Essential Medicines of WHO. In 2020, it was the 58th most commonly prescribed medication in the United States. It does not reduce blood viscosity but inhibits blood coagulation. Warfarin is used to decrease the tendency for thrombosis, and it can prevent formation of future blood clots and reduce the risk of embolism. Warfarin is the best suited for anticoagulation in areas of slowly running blood such as in veins and the pooled blood behind artificial and natural valves, and in blood pooled in dysfunctional cardiac atria. It is commonly used to prevent blood clots in the circulatory system such as DVT and pulmonary embolism, and to protect against stroke in people who have atrial fibrillation (AF), valvular heart disease, or artificial heart valves. Less commonly, it is used following ST-segment elevation myocardial infarction and orthopedic surgery. The warfarin initiation regimens are simple, safe, and suitable to be used in ambulatory and in patient settings (61). Warfarin should be initiated with a 5 mg dose, or 2 to 4 mg in the very elderly. In the protocol of low-dose warfarin, the target international normalized ratio (INR) value is between 2.0 and 2.5, whereas in the protocol of standard-dose warfarin, the target INR value is between 2.5 and 3.5 (62). When warfarin is used and INR is in therapeutic range, simple discontinuation of the drug for five days is usually enough to reverse the effect, and causes INR to drop below 1.5 (63). Its effects can be reversed with phytonadione (vitamin K₁), fresh frozen plasma, or prothrombin complex concentrate, rapidly. Blood products should not be routinely used to reverse warfarin overdose, when vitamin K₁ could work alone. Warfarin decreases blood clotting by blocking vitamin K epoxide reductase, an enzyme that reactivates vitamin K₁. Without sufficient active vitamin K₁, clotting factors II, VII, IX, and X have decreased clotting ability. The anticlotting protein C and protein S are also inhibited, but to a lesser degree. A few days are required for full effect to occur, and these effects can last for up to five days. The consensus agrees that patient self-testing and patient self-management are effective methods of monitoring oral anticoagulation therapy, providing outcomes at least as good as, and possibly better than, those achieved with an anticoagulation clinic. Currently available self-testing/self-management devices give INR results that are comparable with those obtained in laboratory testing. The only common side effect of warfarin is hemorrhage. The risk of severe bleeding is low with a yearly rate of 1-3% (64). All types of bleeding may occur, but the most severe ones are those involving the brain and spinal cord (64). The risk is particularly increased once the INR exceeds 4.5 (64).

The risk of bleeding is increased further when warfarin is combined with antiplatelet drugs such as clopidogrel or aspirin (65). But thirteen publications from 11 cohorts including more than 48,500 total patients with more than 11,600 warfarin users were included in the meta-analysis (66). In patients with AF and non-end-stage CRD, warfarin resulted in a lower risk of ischemic stroke ($p = 0.004$) and mortality ($p < 0.00001$), but had no effect on major bleeding ($p > 0.05$) (66). Similarly, warfarin resumption is associated with significant reductions in ischemic stroke even in patients with warfarin-associated intracranial hemorrhage (ICH) (67). Death occurred in 18.7% of patients who resumed warfarin and 32.3% who did not resume warfarin ($p = 0.009$) (67). Ischemic stroke occurred in 3.5% of patients who resumed warfarin and 7.0% of patients who did not resume warfarin ($p = 0.002$) (67). Whereas recurrent ICH occurred in 6.7% of patients who resumed warfarin and 7.7% of patients who did not resume warfarin without any significant difference in between ($p > 0.05$) (67). On the other hand, patients with cerebral venous thrombosis (CVT) those were anticoagulated either with warfarin or dabigatran had low risk of recurrent venous thrombotic events (VTE), and the risk of bleeding was similar in both regimens, suggesting that both warfarin and dabigatran are safe and effective for preventing recurrent VTE in patients with CVT (68). Additionally, an INR value of about 1.5 achieved with an average daily dose of 4.6 mg warfarin, has resulted in no increase in the number of men ever reporting minor bleeding episodes, although rectal bleeding occurs more frequently in those men who report this symptom (69). Non-rheumatic AF increases the risk of stroke, presumably from atrial thromboemboli, and long-term low-dose warfarin therapy is highly effective and safe in preventing stroke in such patients (70). There were just two strokes in the warfarin group (0.41% per year) as compared with 13 strokes in the control group (2.98% per year) with a reduction of 86% in the risk of stroke ($p = 0.0022$) (70). The mortality was markedly lower in the warfarin group, too ($p = 0.005$) (70). The warfarin group had a higher rate of minor hemorrhage (38 vs 21 patients) but the frequency of bleedings that required hospitalization or transfusion was the same in both group ($p > 0.05$) (70). Additionally, very-low-dose warfarin was a safe and effective method for prevention of thromboembolism in patients with metastatic breast cancer (71). The warfarin dose was 1 mg daily for 6 weeks, and was adjusted to maintain the INR value of 1.3 to 1.9 (71). The average daily dose was 2.6 mg, and the mean INR was 1.5 (71). On the other hand, new oral anticoagulants had a favourable risk-benefit profile with significant reductions in stroke, ICH, and mortality, and with similar major bleeding as for warfarin, but increased gastrointestinal bleeding (72). Interestingly, rivaroxaban and low-dose apixaban were associated with increased risks of all cause mortality compared with warfarin (73). The mortality rate was 4.1% per year in the warfarin group, as compared with 3.7% per year with 110 mg of dabigatran and 3.6% per year with 150 mg of dabigatran ($p > 0.05$ for both) in patients with AF in another study (74). On the other hand, infections, medical or surgical emergencies, or emotional stress-induced increased basal metabolic rate accelerates

sickling, and an exaggerated capillary endothelial edema-induced myocardial infarction or stroke may cause sudden deaths in the SCD (75). So lifelong aspirin with an anti-inflammatory dose plus low-dose warfarin may be a life-saving treatment regimen even at childhood both to decrease severity of capillary endothelial inflammation and to prevent thromboembolic complications in the SCD (76).

COPD is the third leading cause of death with various underlying etiologies in whole world (77, 78). Aging, physical inactivity, sedentary lifestyle, animal-rich diet, smoking, alcohol, male gender, excess weight, chronic inflammations, prolonged infections, and cancers may be the major underlying causes. Atherosclerotic effects of smoking may be the most obvious in the COPD and Buerger's disease, probably due to the higher concentrations of toxic substances in the lungs and pooling of blood in the extremities. Beside smoking, regular alcohol consumption is also important for the pulmonary and systemic inflammatory process of the COPD, since COPD was one of the most common diagnoses in alcohol dependence (79). Furthermore, 30-day readmission rates were higher in the COPD patients with alcoholism (80). Probably an accelerated atherosclerotic process is the main structural background of functional changes that are characteristics of the COPD. The inflammatory process of vascular endothelium is enhanced by release of various chemicals by inflammatory cells, and it terminates with an advanced fibrosis, atherosclerosis, and pulmonary losses. COPD may actually be the pulmonary consequence of the systemic atherosclerotic process. Since beside the accelerated atherosclerotic process of the pulmonary vasculature, there are several reports about coexistence of associated endothelial inflammation all over the body in COPD (81, 82). For example, there may be close relationships between COPD, CHD, PAD, and stroke (83). Furthermore, two-third of mortality cases were caused by cardiovascular diseases and lung cancers in the COPD, and the CHD was the most common cause in a multi-center study of 5,887 smokers (84). When the hospitalizations were researched, the most common causes were the cardiovascular diseases, again (84). In another study, 27% of mortality cases were due to the cardiovascular diseases in the moderate and severe COPD (85). On the other hand, COPD may be the pulmonary consequence of the systemic atherosclerotic process caused by the hardened RBC in the SCD (77).

Digital clubbing is characterized by the increased normal angle of 165° between nailbed and fold, increased convexity of the nail fold, and thickening of the whole distal finger (86). Although the exact cause and significance is unknown, the chronic tissue hypoxia is highly suspected (87). In the previous study, only 40% of clubbing cases turned out to have significant underlying diseases while 60% remained well over the subsequent years (18). But according to our experiences, digital clubbing is frequently associated with the pulmonary, cardiac, renal, and hepatic diseases and smoking which are characterized with chronic tissue hypoxia (5). As an explanation for that hypothesis, lungs,

heart, kidneys, and liver are closely related organs which affect their functions in a short period of time. On the other hand, digital clubbing is also common in the SCD, and its prevalence was 10.8% in the present study. It probably shows chronic tissue hypoxia caused by disseminated endothelial damage, inflammation, edema, and fibrosis at the capillary level in the SCD. Beside the effects of SCD, smoking, alcohol, cirrhosis, CRD, CHD, and COPD, the higher prevalence of digital clubbing in males (14.8% vs 6.6%, $p < 0.001$) may also show some additional role of male gender in the systemic atherosclerotic process.

Cirrhosis was the 10th leading cause of death for men and the 12th for women in the United States in 2001 (6). Although the improvements of health services worldwide, the increased morbidity and mortality of cirrhosis may be explained by prolonged survival of the human being, and increased prevalence of excess weight all over the world. For example, nonalcoholic fatty liver disease (NAFLD) affects up to one third of the world population, and it became the most common cause of chronic liver disease even at childhood, nowadays (88). NAFLD is a marker of pathological fat deposition combined with a low-grade inflammation which results with hypercoagulability, endothelial dysfunction, and an accelerated atherosclerosis (88). Beside terminating with cirrhosis, NAFLD is associated with higher overall mortality rates as well as increased prevalences of cardiovascular diseases (89). Authors reported independent associations between NAFLD and impaired flow-mediated vasodilation and increased mean carotid artery intima-media thickness (CIMT) (90). NAFLD may be considered as one of the hepatic consequences of the metabolic syndrome and SCD (91). Probably smoking also takes role in the inflammatory process of the capillary endothelium in liver, since the systemic inflammatory effects of smoking on endothelial cells is well-known with Buerger's disease and COPD (26). Increased oxidative stress, inactivation of antiproteases, and release of proinflammatory mediators may terminate with the systemic atherosclerosis in smokers. The atherosclerotic effects of alcohol is much more prominent in hepatic endothelium probably due to the highest concentrations of its metabolites there. Chronic infectious or inflammatory processes and cancers may also terminate with an accelerated atherosclerosis in whole body (92). For example, chronic hepatitis C virus (HCV) infection raised CIMT, and normalization of hepatic function with HCV clearance may be secondary to reversal of favourable lipids observed with the chronic infection (92, 93). As a result, cirrhosis may also be another atherosclerotic consequence of the SCD.

CRD is also increasing all over the world that can also be explained by aging of the human being, and increased prevalence of excess weight all over the world (94). Aging, physical inactivity, sedentary lifestyle, animal-rich diet, excess weight, smoking, alcohol, inflammatory or infectious processes, and cancers may be the major causes of the renal endothelial inflammation. The inflammatory process is enhanced by release of various chemicals by lymphocytes to repair the damaged endothelial cells of the renal arteriols. Due to the continuous irritation of the

vascular endothelial cells, prominent changes develop in the architecture of the renal tissues with advanced atherosclerosis, tissue hypoxia, and infarcts (95). Excess weight-induced hyperglycemia, dyslipidemia, elevated BP, and insulin resistance may cause tissue inflammation and immune cell activation (96). For example, age ($p = 0.04$), high-sensitivity C-reactive protein ($p = 0.01$), mean arterial BP ($p = 0.003$), and DM ($p = 0.02$) had significant correlations with the CIMT (94). Increased renal tubular sodium reabsorption, impaired pressure natriuresis, volume expansion due to the activations of sympathetic nervous system and renin-angiotensin system, and physical compression of kidneys by visceral fat tissue may be some mechanisms of the increased BP with excess weight (97). Excess weight also causes renal vasodilation and glomerular hyperfiltration which initially serve as compensatory mechanisms to maintain sodium balance due to the increased tubular reabsorption (97). However, along with the increased BP, these changes cause a hemodynamic burden on the kidneys in long term that causes chronic endothelial damage (98). With prolonged weight excess, there are increased urinary protein excretion, loss of nephron function, and exacerbated HT. With the development of dyslipidemia and DM in cases with excess weight, CRD progresses much more easily (97). On the other hand, the systemic inflammatory effects of smoking on endothelial cells may also be important in the CRD (99). Although some authors reported that alcohol was not related with the CRD (99), various metabolites of alcohol circulate even in the blood vessels of the kidneys and give harm to the renal vascular endothelium. Chronic inflammatory or infectious processes may also terminate with the accelerated atherosclerosis in the renal vasculature (92). Although CRD is due to the atherosclerotic process of the renal vasculature, there are close relationships between CRD and other atherosclerotic consequences of the metabolic syndrome including CHD, COPD, PAD, cirrhosis, and stroke (100, 101). For example, the most common cause of death was the cardiovascular diseases in the CRD again (102). The hardened RBC-induced capillary endothelial damage in the renal vasculature may be the main cause of CRD in the SCD. In another definition, CRD may just be one of the several atherosclerotic consequences of the metabolic syndrome and SCD, again (103).

Stroke is an important cause of death, and develops as an acute thromboembolic event on the chronic atherosclerotic background in most of the cases. Aging, male gender, smoking, alcohol, and excess weight may be the major underlying causes. Stroke is also a common complication of the SCD (104). Similar to the leg ulcers, stroke is particularly higher in the SCA and cases with higher WBC counts (105). Sickling-induced capillary endothelial damage, activations of WBC, PLT, and coagulation system, and hemolysis may terminate with chronic capillary endothelial inflammation, edema, and fibrosis (106). Probably, stroke may not have a macrovascular origin in the SCD, and diffuse capillary endothelial inflammation, edema, and fibrosis may be much more important. Infections, inflammations, medical or surgical emergencies, and emotional stress may

precipitate stroke by increasing basal metabolic rate and sickling. A significant reduction of stroke with hydroxyurea may also suggest that a significant proportion of cases is developed due to the increased WBC and PLT counts-induced exaggerated capillary inflammation, edema, and fibrosis (107).

As a conclusion, the hardened RBC-induced capillary endothelial damage initiates at birth, and terminates with leg ulcers-like atherosclerotic endpoints even at childhood in SCD. Similarly, smoking causes a systemic inflammation on vascular endothelium terminating with an accelerated atherosclerosis-induced end-organ insufficiencies in whole body. Its atherosclerotic effect is the most obvious in the COPD and Buerger's disease, probably due to the higher concentrations of toxic substances in lungs and pooling of blood in lower extremities. Since the already developed vascular stenoses are irreversible in Buerger's disease, anti-inflammatory dose of aspirin plus low-dose warfarin may be the best treatment regimen to protect fingers and toes from acute infarctions. The regimen may even increase the leg performance by preventing acute ischemias in microcirculation of the legs.

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Pilocarpine effectiveness in preventing xerostomia induced by radiation

Rajab A. Alzahrani

Associate Professor of Otolaryngology, Unit of Otolaryngology, Department of Surgery, Al-Baha University

Correspondence:

Dr. Rajab A. Alzahrani

Associate Professor of Otolaryngology

Unit of Otolaryngology, Department of Surgery, Al-Baha University, Saudi Arabia

Email: rasalzahrani@bu.edu.sa

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Abstract

Objective: The purpose of this review was to assess the effectiveness of concurrent pilocarpine treatment on xerostomia induced by radiation in patients suffering from malignancies.

Method: I'm going to thoroughly review electronic databases, in order to find publications examining the impact of simultaneous pilocarpine treatment for radiation-induced xerostomia.

Outcomes of interest: Salivary flow, quality of life, adverse effects, patient-reported xerostomia score, clinician-rated xerostomia grade, were the outcomes of interest.

Findings: Simultaneous pilocarpine administration during radiation therapy may raise the salivary flow rate six months after treatment and lower the xerostomia grade rated by the clinician. Pilocarpine did not substantially affect patient-reported xerostomia during the first three months, but by the sixth month, it was better. Pilocarpine's side effects were moderate and bearable.

Conclusion: Concurrent pilocarpine administration during radiation therapy lowers the xerostomia severity and increases the rate of salivary flow.

Key words: pilocarpine, xerostomia, radiation

Introduction

In the multidisciplinary treatment of cancer, radiotherapy is used either as the primary treatment regimen or as an adjuvant. Xerostomia is one of the most prevalent acute and chronic adverse effects of radiation treatment. Xerostomia is a subjective feeling of dry mouth that can be brought on by changes in salivary flow or composition (1). Patients with xerostomia frequently report problems speaking and swallowing, loss of taste, poor oral hygiene, and other symptoms that significantly lower quality of life (2).

Treatments such as sialagogic drugs and salivary replacements have been proposed to alleviate radiation-induced xerostomia (3). Pilocarpine is a cholinergic agonist that has been licensed by the FDA to treat xerostomia by stimulating salivary glands. More promising are preventive regimens, such as parotid gland sparing with 3D conformal or intensity-modulated radiation therapy (IMRT) and submandibular gland transfer before irradiation (4). Research has validated the noteworthy function of IMRT in averting xerostomia and preserving typical oral functions (5). However, the salivary glands may still partially overlap the planned target volume even with IMRT, which might lead to some degree of xerostomia and salivary glands damage (6).

Pilocarpine was given concurrently with radiation therapy in order to reduce xerostomia caused by radiation in patients with malignancies, according to an early clinical trial (7). Although its precise effectiveness is still being studied, no published experiment has proven pilocarpine's effectiveness in preventing xerostomia to be sufficiently strong thus far. Before concurrent pilocarpine is advised for regular usage, there must be strong evidence. Thus, our goal was to do a review in order to assess pilocarpine administration effectiveness on xerostomia caused by radiation in patients suffering from malignancies.

Method

Using various combinations of the following keywords, I searched electronic databases for pertinent articles: pilocarpine, salagen, radiation, radiotherapy, xerostomia, dry mouth, and hyposalivation. No additional restrictions on the publishing type or language were placed on the review of any paper published up to 2024. I also manually looked the reference lists of research that qualified.

Literature Review and Results

A double-blind, randomized clinical trial conducted in 2023 (8) involving 63 patients with xerostomia induced by radiation, found that saliva secretion significantly decreased in the control group when compared to the pilocarpine mouthwash group at different times after radiotherapy (8). In 2024, Kittichet al. (9) carried out a study to evaluate the long-term effect and adverse reactions of pilocarpine in treating and preventing radiation-induced xerostomia in patients with cancer. Their study suggests that long-term

pilocarpine usage in irradiated cancer is possible for both the treatment and prevention of xerostomia induced by radiation (9).

A 2024 research by Gül et al. (10) patients continued their pilocarpine medication, with 12 months median duration. Ten milligrams was the median maintenance daily dosage. After taking the medicine, the total Patient-Reported Outcome Measurement scale dropped dramatically from 13 to 7. Questions on dry mouth, drinking water while eating, carrying water, taste, and drinking water while speaking showed significant improvements. When patients receiving intensity-modulated radiation treatment were compared to those receiving conformal radiotherapy, the initial and maintenance dosages of pilocarpine were lower, and the duration of pilocarpine administration was shorter (10). According to recent study conducted in India in 2023 by Kaue et al., (11) despite improved findings on salivary absorption after six months, oral pilocarpine did not significantly alter the salivary gland excretory system. Oral pilocarpine, on the other hand, considerably reduced xerostomia symptoms with only mild, mostly sweat-related, adverse effects (11).

In 2022, research was carried out by Agrawal S et al (12) to assess the effectiveness and safety of oral pilocarpine taken concurrently with radiation therapy in order to protect patients with cancer from radiation-induced xerostomia. The findings of the study showed that the administration of pilocarpine during, and three months after irradiation was beneficial in improving patient compliance with radiation treatment. During the various stages of the post-radiation assessment, most patients showed less subjective symptoms and lower grades of toxicities (12).

Burlage et al. (2008) found that patients who received pilocarpine and a mean parotid dose above 40 Gy had a significantly lower loss of parotid flow one year after radiotherapy, despite the fact that there were no significant differences in the parotid flow rate complication probability for the two treatment arms. In The Late-Life Impact of Managing Normal Tissue/Somatic Objectives comparable trends towards less complaints related to dryness were seen for the pilocarpine group in both the analytical scale and patient-rated xerostomia scores (13).

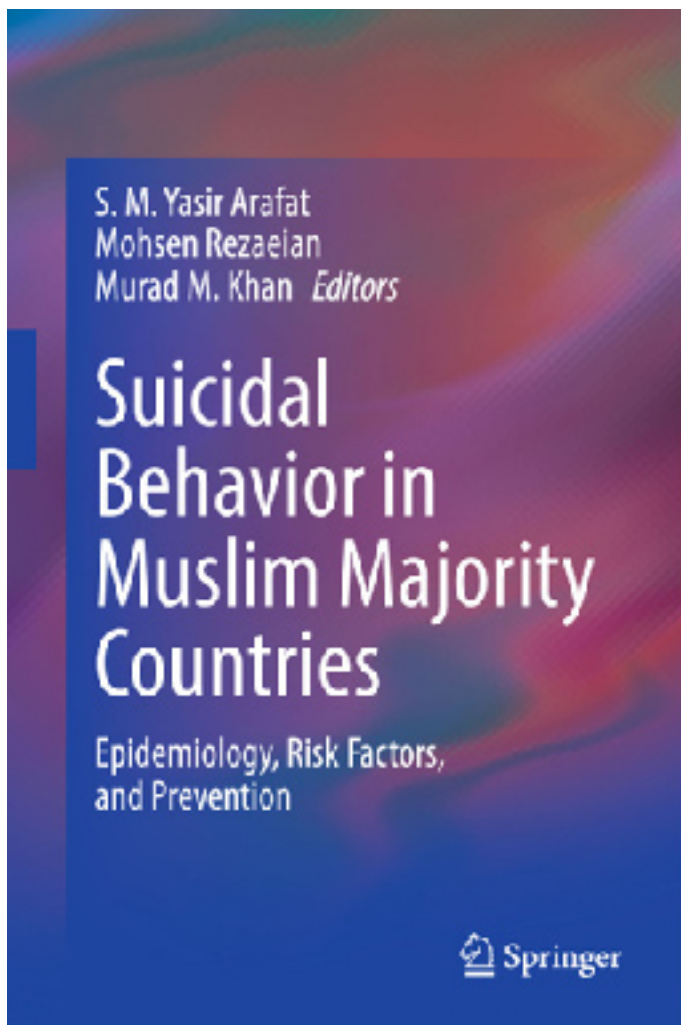
The study conducted by Fisher et al. (2003) involved the randomization of 249 patients. Patients were split equally between the arms based on factors such as salivary function, tumour location, T stage, gender, race, and tobacco use. In the pilocarpine arm, a Karnofsky performance level of 90% was more typical. Nutritional supplements were taken by 29% of patients in the placebo arm and 20% of patients on the pilocarpine arm. Patients in the placebo group experienced more mouth soreness and difficulty chewing. In the pilocarpine arm, there was a statistically significant preservation of salivary function; nevertheless, patients experienced difficulty with swallowing, activity, hyposalivation, and taste. At three months, there was no difference in the arms' mucositis scores, and both showed a greater need for oral nutrition (14).

Conclusion

Concurrent pilocarpine treatment during radiation therapy has been shown to lower the grade of xerostomia assessed by clinicians and raise the rate of salivary flow. In the long term, it might also improve patients with xerostomia. There is a need for more high-quality studies using standardized outcome measures and questionnaires.

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Suicidal Behavior in Muslim Majority Countries Epidemiology, Risk Factors, and Prevention

S. M. Yasir Arafat, Mohsen Rezaeian and Murad M. Khan (Editors)

With so many existing and emerging issues affecting mental health globally, this work is a timely review of issues faced specifically in Muslim (majority) countries. The editors advise there has been no serious attempt to study suicidal behaviors in Muslim-majority countries previously and the book covers epidemiology, risk factors of suicidal behavior, and the challenges of suicide prevention.

The book will serve as a useful resource for family doctors who may be the first point of contact of potential suicides, as well as policymakers, public health specialists, mental health professionals and non-governmental and voluntary organizations interested in suicide prevention in Muslim-majority countries and in Muslim populations in non-Islamic countries.

The book was compiled by S. M. Yasir Arafat, Mohsen Rezaeian and Murad M. Khan who have a deep, ongoing interest in the topic. Previous articles include:

Arafat SMY, Baminiwatta A, Menon V, Singh R, Varadharajan N, Guhathakurta S, Mahesar RA, Rezaeian M. Prevalence of suicidal behaviour among students living in Muslim-majority countries: systematic review and meta-analysis. *BJPsych Open*. 2023 Apr 14;9(3):e67. doi: 10.1192/bjo.2023.48.

Arafat S M Y, Menon V, Hussain F, Rezaeian M. Suicidal Behavior and Suicide Research during COVID-19 Pandemic in Muslim-Majority Countries: A Rapid Review. *JSP*. 2022; 4 (1) :3-23.

Arafat SMY, Marthoenis M, Khan MM, Rezaeian M. Association between Suicide Rate and Human Development Index, Income, and the Political System in 46 Muslim-Majority Countries: An Ecological Study. *Eur J Investig Health Psychol Educ*. 2022 Jul 9;12(7):754-764. doi: 10.3390/ejihpe12070055. PMID: 35877455; PMCID: PMC9318836.

Arafat SMY, Khan MM, Menon V, Ali SA, Rezaeian M, Shoib S. Psychological autopsy study and risk factors for suicide in Muslim countries. *Health Sci Rep*. 2021 Oct 1;4(4):e414. doi: 10.1002/hsr2.414. PMID: 34622034; PMCID: PMC8485607.

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Lesley Pocock

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Social Media and Adolescent Mental Health – An Essay

"Save me, save me from tomorrow. I don't want to sail in this ship of fools." World Party

Lesley Pocock

Correspondence:

Lesley Pocock

Managing Director

medi+WORLD International

Email: lesleypocock@mediworld.com.au; publishermwi@gmail.com

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Abstract

The simple truth is on our watch we have destroyed the planet that our youth will inherit, through brutal dictatorships, wars, and inaction on climate change: causing fire, flood, drought and famine. Additionally we have a small greedy wealthy class that owns almost everything while the rest struggle. And while social media can cause cyber-bullying and suicide, violence against women and girls, depression and anxiety, it may also through its endless hype and distraction be attempting to deliberately blind young people to what is happening, particularly the obscene distribution of wealth. This is a double edged sword.

There may even be reason for having concern about those youth not showing signs of anxiety and depression. They may have just given up while those adversely affected are still fighting for their life and have some hope yet.

This paper looks at the mental health issues of adolescents using social media and at what some governments (Australia, India, UK and the US) are doing about it.

Keywords: adolescents, social media, mental health, suicide, depression, anxiety, cyber-bullying, violence



Overview and Case History

As is the pattern with our modern world every innovation that can bring positive benefits to people and society can eventually fall foul of the marketers and exploiters, while social media which had the promise of bringing the world together is now falling into the hands of the greedy, the devious and indeed organised crime.

The many depressing 'real life problems', of this perilous world that young people are born into are the stuff of nightmares; wars, dictatorships, genocide, violence, trafficking, sexual predation and looming planetary destruction to name a few. Anyone who does not recognise this appalling legacy needs to open their own eyes. Sadly far too many people are far too involved in their own problems to bravely confront the real issues. Those young people who do succumb are often the intelligent and sensitive youth among us or the direct victims of the dross and insanity themselves. Some of the poison comes from, and is broadcast by, social media. This study on the topic suggests it is not the primary cause but the catalyst in far too many cases and the media shows little conscience in their bid to exploit their users financially and psychologically. Those mentally and psychologically robust may benefit from aspects of social media and ensure they don't fall victim, but the grinding away, and the shallow disregard for the breadth of their 'customers' is not being addressed by the social media giants and the situation is becoming worse, especially with the advent of AI. The AI myth is mostly a means for the social media and tech giants

to also get some ownership of the world's knowledge; to fluff it up and put it in new clothing and thus sell it to further their own financial or monopolistic aims.

Further one could say that social media is the drug, the diversion that stops youth and all of us confront the destructive and greedy human society that keeps us all down. Youth suicide, depression and anxiety and violence, particularly against females, are compounded by social media which is both a mask and a perpetrator of human disorder.

I will start this essay with a real life case history. As a postgrad medical educator working in innovative global education solutions using ICT to overcome both a global disparity in health care and medical education resources I was asked by our government, top schools and those representing disadvantaged children locally and regionally to take on work experience students - both high IQ students and those with disadvantages (of isolation/distance and of access to resources etc.). About 70% of my work has always been philanthropic so the hope was to also inspire young people.

I start all new student sessions with an outline of the company's high end ICT work and how it is also used for our philanthropic work

Among our students in one intake was a tall, handsome boy from an isolated, low population area of the country. On the first day when I went to personally check on how he had settled in he showed me a suicide website he frequents.

I recognised it was a cry for help, and that my reaction was going to be so important and I knew I had a week to turn his life around. I also considered if I should alert his parents but felt that was a huge breach of trust at that stage. During the week he kept coming into my office to ask me questions about his life and life generally, so I didn't have to initiate our long talks. On the last day I always wish my students 'a good life' - he came back and hugged me tight for a long while.

Both his school and his parents later wrote to me to say I don't know what you did or said but he is a changed boy and is studying hard (he had told me he had no friends and I said you are a big fish in a small pond and will find people like yourself when you go to university).

The lesson this boy *taught me* was such adolescents don't want to die; he was desperately seeking a reason and a way to live. He also wanted to know how to find the resilience he needed to face each day on planet earth.

Many countries are currently struggling with the issue of adolescent mental health, and adolescent suicide which until the Covid pandemic was rising rapidly in some countries, while falling in others. It seems that like civilians in war situations, civilians in global pandemics also rally to survive.

Conversely the global pandemic saw a rise in youth violence and gender based violence - creating its own survival problems for women and girls. While suicide has improved generally in some countries in many countries it has now resumed its upward trajectory.

In our current age along with the 'advertisers', malevolent scammers, hoaxers, predators and dictators who use electronic media to spread lies and propaganda, "social media" has contributed to the worsening situation in many ways. The owners of these platforms have used their unlimited power to make money through manipulation, both financial and psychological. While access to friends and peers, healthy interests and study material is a benign aspect of social media's global presence in many ways the uncontrolled and often uninvited access to a range of destructive forces is causing and exacerbating mental illness and anti-social behaviours.

These forces include: doomscrolling (particularly regarding the wanton destruction of our planet – the place where the youth of our day were meant to live and leave to their own children), body dysmorphia and mutilation, misogyny, sexual stalking and entrapment, online bullying leading to suicide, extreme violence, radicalism online and so many other antisocial activities.

While honest, good and brave journalism still exists, generally the days of global editorial integrity, self-censorship (etc) have long gone. Rather the hype we see in the media generally, in most countries is increasingly political and commercial, malevolent misinformation, commercial hype and 'baits' for the media giants to get

more hits to impress their advertisers, and peddlers of misogyny, hate, racism and prejudice. How is a young person, not schooled in sifting through the moral soup of global society, to know? Even if they hap upon the truth there are forces to push them to extreme views.

Surely there is a human right to education and truth. We as a human society have valued education and passed that on to the next generation. Education itself is now not a clear human right – since the 'birth' of so-called AI was lauded, it has increasingly become commercialised. Already some appalling examples of misuse, indeed insidious use have started to emerge. The real problem is that evil and criminal behaviours have permeated their way through our global society and all media, including social media has fallen to its gospel of hate and privilege.

Acts of murder, and all pervasive violence against women is encouraged and abetted by various media and at the same time people are told what to believe, how to behave and who and what to "like".

The Tate brothers, the Incel movement and violent pornography are examples of those who aid and abet these views. Many mass murderers target women solely these days. Examples are Incel in Canada and the Bondi mall stabbings in Australia, both because 'they couldn't get (a) girlfriend(s)'. Of course the plethora of violent, misogynistic and disrespectful pornography (i.e. all pornography) abounds resulting in the debasement of women and girls and when it is normalised, body dysmorphia leading to dangerous surgical procedures to become gross caricatures of pornography objects resulting in even more disrespect of women and girls.

Women are targeted with images of surgically altered and inflated caricatures of real women – ugly and stupid versions of women, with over inflated lips and breasts like a scene from some dystopian brothel. Many see the malevolence behind this but so many don't, especially those who have been abused by some narcissist. In hand with that is the movement to inflict derision on those who do not hold those 'values'. Oft times to speak the truth is also a 'crime' it seems, so the forces of derision and division are well protected by media creating division and controversy.

Online misogyny, Sexual violence and harassment

The growing sexual and physical violence against women and children generally and globally is being fed by and through social media – for example women are demeaned by the Tate brothers – with Andrew Tate now imprisoned in Romania for sexual trafficking and rape. Andrew Tate, the controversial social media figure known for his sexist and inflammatory views, has garnered significant attention online. Here are some notable points about him:

TikTok Influence: The Centre for Countering Digital Hate (CCDH) identified over 100 TikTok accounts frequently promoting Tate's content, resulting in a total of 250 million video views and 5.7 million followers.

TikTok Hashtag: Videos with the hashtag #andrewtate have accumulated an impressive 13 billion views on TikTok.

In Australia there have been several recent notorious acts against school girls by their male classmates.

An Instagram post recently circulated online, ranking female students from a Gold Coast secondary school in deeply disturbing and sexist categories. The post, which has since been deleted, categorized some students from Foxwell State Secondary College into labels such as “abduction material,” “one night stand,” “average,” and even the horrifying term “unrapeable”. The Queensland Department of Education swiftly responded to this vile content, describing it as unacceptable. They acted immediately to have the post removed and are currently investigating the matter. The impact on the students involved is concerning, and the department has offered counseling to those affected. Unfortunately, this incident is not isolated. Just a few weeks prior, a similar misogynistic list emerged at Yarra Valley Grammar School in Melbourne, where male students had compiled an offensive spreadsheet rating their female classmates by looks .

Female teachers are also being attacked and held to ridicule by male students.

This male violence is being associated with ready online access to violent and misogynist pornography (ie all pornography) but may also be because in Australia women DO have full human rights, which some men resent. However in India which has an epidemic of young female suicide it is in many cases down to the fact that women DON'T have proper rights. Again it is a double edged sword.

Born into a world of brutal dictatorships where wealth is in the hands of the greedy few and with the natural world sullied, with the oceans, land and air polluted and climate change causing endless natural disasters, an uncertain future faces us all. Our youth have many real things to be depressed about. Of course many generations of people have faced such uncertainties but now they are apparent everywhere and global disaster is imminent.

Social media has been both a purveyor of the awful truths and an (unreliable) escape.

Social media may also be an ‘opiate’ for young people to divert them away from what is really happening on the planet they will inherit. Therefore those not addicted to social media may be in a worse condition than those committing suicide. They may have already ‘given up’.

Further, social media’s opiate offerings can lead the young away from the real issues and sugar coat’ an increasingly violent and corrupted world. While this offers immediate relief it is not a good longterm approach to life.

Pornography and sexual abuse of women and children

Abuse of children is not just on the ‘dark web’ - it can be accessed via Meta and Facebook, Twitter, TikTok Google and Instagram

An Australian report finds that the majority of teen respondents age 13–17 have watched pornography online. While some have come across it accidentally while browsing, a significant number of teens are viewing pornography intentionally.

The new study highlighted the extent of porn consumption among Australia’s youth. Researchers warn it’s “likely to be having harmful effects”.

Researchers say a growing body of evidence indicates that young people’s pornography exposure and use has public health implications. Source: Getty / Marcus Brandt

Key Points

It found the majority of 15-20 year olds, especially males, have been exposed to porn.

The study’s authors are calling for public health strategies to address the potential harms.

Exposure to pornography among children could lead to gender-based violence and risky sexual practices and should be treated as a public health issue, researchers have suggested.

A growing body of evidence indicates pornography “plays a role in shaping young people’s sexual understandings, expectations, and experiences”, says a study from the Queensland University of Technology (QUT).

While some research finds exposure to pornography can have positive implications for young people’s sexual experiences, the new study refers to other data which suggests this view is too narrow and doesn’t take into account porn’s negative influences, especially regarding gender inequalities and violence.

Previous studies have said pornography consumption is associated with harmful behaviours and attitudes, including sexual coercion and aggression, rape myth acceptance, and risky sexual behaviours.

It could also make people more likely to sexually objectify others, hold stereotypical views of women and perpetrate sexual violence.

The QUT study, released in the Australia and New Zealand Journal of Public Health, provides the first national look at how young people in Australia are exposed to pornography.

Administering an anonymous online survey, researchers from OurWatch, the national organisation working to stop violence against women and children, recruited

1,985 young Australians aged 15-20 from a range of geographical locations and socioeconomic and cultural backgrounds to discuss pornography.

"The takeaway is that exposure to pornography is common, particularly among boys and young men, and is likely to be having harmful effects," he said.

Of all the young people surveyed who reported they had seen pornography, most were first exposed to it years before their first sexual experience with another person. Meanwhile, 89 per cent of both male and female study participants were most likely to view porn at home, with 94 per cent viewing it on an electronic device like a smartphone or laptop.

One "particularly confronting" finding of the study, Flood said, was the young age at which respondents reported first seeing pornography.

The age of first exposure is likely trending downwards as the spread of technology makes porn more accessible, said Flood, who also co-authored the first Australian research on children's exposure to pornography in 2003.

"Young people's access to pornography is essentially unfettered," he said.

"Because of rates of smartphone use and internet use, and because of the ease of availability of pornography, there's every reason to think that those ages of first exposure are declining over time."

The researchers said the study shows pornography likely has a "significant influence" on sexual attitudes and behaviours in young people in Australia, especially boys and young men.

They also argue that it "supports the need for public health strategies to address the potential harms associated with pornography use".

Sex education in Australia should cover porn more comprehensively, and invite young people to think more critically about it. Parents should be better equipped to have productive conversations about porn with their children. Large-scale social marketing campaigns should raise community awareness about the sexist and harmful content in pornography and foster more gender-equitable and inclusive social norms.

The government should play a role in supporting legal and regulatory strategies to lessen the exposure of minors to pornography.

The study suggests in its concluding remarks that reducing pornography's potential harms could play an important role in the prevention of future sexual violence.

"There's certainly a solid body of evidence to suggest that pornography use is one risk factor — not the only risk factor, but one risk factor — for sexual violence, perpetration and victimisation," he said.

A 2015 longitudinal study — a method that measures individuals over a prolonged time period — found that pornography use predicts later sexually violent attitudes and behaviours.

That study noted that "consumption was associated with sexual aggression in the United States and internationally, among males and females", and that "associations were stronger for verbal than physical sexual aggression, although both were significant."

"Sexual violence is getting worse in Australia," he said. "And one factor that may be driving that is pornography." (Published 20 March 2024 5:49am)

In Australia one female is savagely murdered every 4 days, usually by her 'partner'. In the recent "Bondi stabbings" where the murderer targeted only females - his victims included a baby girl.

Australian women are very angry and demanding action. Fortunately we have a decent PM.

The social media and right wing press backlash

Social media critics, along with those warning about the near destruction of our planet are being called "catastrophists". It is their latest buzz word to use against people like Greta Thunberg and all the other young people demanding change.

Of course some young people recognise exactly what is going on such as the Members of Extinction Rebellion, Greta Thunberg and her ilk.

Greta's crime / telling the truth — showed how incredibly evil the right wing media can be. Their only interest is protecting their wealth.

She is personally insulted, and was pilloried for catching a plane that was already flying on a certain schedule. A decent young girl trying to save her home planet has borne the wrath of greedy monopolies and their spokespeople the right wing press. The greedy wealthy classes that own most of the world and keep the rest impoverished, that carry out their planet destroying activities are the biggest concern to young people and should be. And what carries their messages of hate and revenge — right wing social media platforms. Why the right wing media? Because these are the very same people who have made huge fortunes out of destroying the planet and emptying it of such resources, for all time.

They cannot stop themselves from wanting more. Looking at their personality profiles it seems they, like their brutal dictator counterparts, enjoy their power of planetary and human destruction. They are psychopaths.

Government responses

Many Governments and world authorities have been questioning the safety of uncontrolled social media on as well as other aspects, adolescent and child health.

There is a proliferation of research and articles and data on the topic but those responsible for its dissemination, for controlling it, have little sway against the social medial giants and their right to earn money at the expense of their victims.

Mental health encompasses emotional, psychological, and social well-being, influencing cognition, perception, and behaviour. According to World Health Organization, it is a “state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and can contribute to his or her community”. It likewise determines how an individual handles stress, interpersonal relationships, and decision-making. Mental health includes subjective well-being, perceived self-efficacy, autonomy, competence, intergenerational dependence, and self-actualization of one’s intellectual and emotional potential, among others. From the perspectives of positive psychology or holism, mental health may include an individual’s ability to enjoy life and to create a balance between life activities and efforts to achieve psychological resilience. Cultural differences, personal philosophy, subjective assessments, and competing professional theories all affect how one defines “mental health”. Some early signs related to mental health difficulties are sleep irritation, lack of energy, lack of appetite, thinking of harming oneself or others, self-isolating, and frequently zoning out.

Australia

Australia which is one of the most highly computerised societies in the world, has a rising and accelerating youth suicide (and male violence) problem, stemmed by the Covid pandemic– (when you are trying to stay alive suicidal thoughts are put aside.) I also suggest unlike the exponential growth of suicide among Indian girls – these cohorts of young people have not yet ‘given up’. They still believe in a brighter future for themselves the planet and humanity generally and are protesting in numbers.

Suicide due to bullying on social media is common due to its anonymity; bullying of both young men and young women, radicalism online, leading to acts of mass violence and deliberate targeting of women for murder. In Australia a peaceful nation where guns are banned a female is murdered, usually by her partner, every 4 days. Of course the place of violent misogynistic pornography accessible by all age groups online contributes greatly to the problem and the Australian and some other governments are now looking into this availability. The men who are not adversely affected by this rubbish are those who have no wish to view it in the first place. It is a self-perpetuating problem.

The Australian Institute of Health and Welfare (aihw.gov.au) advises suicide is the leading cause of death among Australians aged 15–24 (Deaths in Australia). The proportion of all deaths that are deaths by suicide is relatively high among children and young people. This is because people in these age groups do not tend to die from other causes.

In 2022:

304 Australian young people (aged 18–24 years) took their own lives.

77 deaths by suicide occurred among children and adolescents (aged 17 and below) with the majority occurring in those aged 15–17 (83.1%)

Deaths by suicide represented 30.9% of all deaths in young people aged 15–17 years and 32.4% of all deaths in those aged 18–24 years—up from 16.5% and 23.9% respectively of all deaths in these age groups in 2001. In children aged 14 and below, the proportion of all deaths that are deaths by suicide is low compared with the two older age groups. In 2022 deaths by suicide represented 0.9% of all deaths in children aged 14 and below.

India

In India with a much higher population, every hour, one Indian woman of age 15-39 years takes her own life. (National Crime Records Bureau (NCRB))

India’s young women face a serious suicide crisis. NCRB reports a rise from 12.7 to 17.5 per 1,00,000 (2011 to 2021), with one woman aged 15-39 ending her life every hour. This highlights a dire need for protection.

Relative Deprivation: Despite advances in education and empowerment, stigma persist creating conflicts for young women (Status inconsistency). This tension is evident more in South India, where modern perspectives clash with traditional norms [Lancet (2018)].

Changing Family Dynamics: Globalization has led to shifts in relationship dynamics, contributing to feelings of isolation among young women. The decline in joint families leaves housewives more vulnerable to mental health issues.

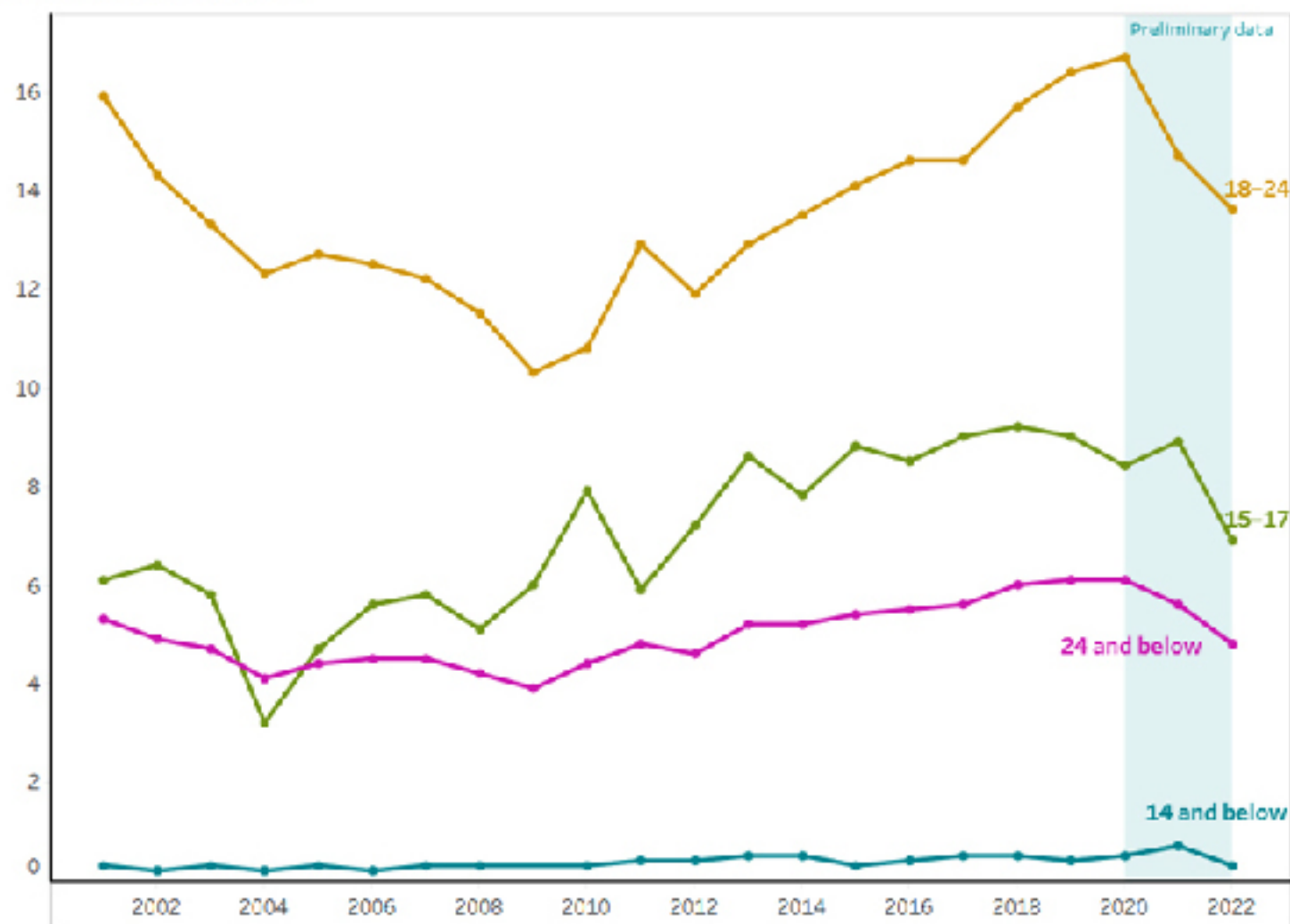
Patriarchal Structure: Gender discrimination limits education, healthcare, nutrition. Marriage pressure stigmatizes unmarried women. Married women (Early Marriage) endure violence, deepening gender bias and despair.

Limited economic Opportunities: results in lack of independence (glass ceiling) and contributes to pessimism and self-doubt.

Mental Health Issues: Unrealistic standards (beauty) and excessive burden due to dual role performed by women worsen the situation.

Suicide deaths of children and young people, Australia, 2001 to 2022

Age-specific rate (per 100,000)



Select measure:

- ☒ Age specific rate (per 100,000)
☐ Number
☐ Per cent of all causes of death

- ☒ 24 and below
☐ 14 and below
☐ 15-17
☐ 18-24

From: Suicide deaths of children and young people, Australia, 2001 to 2022.

United States

(February 20, 2024 AT 7:30 AM)

In January, Mark Zuckerberg, CEO of Facebook's parent company Meta, appeared at a congressional hearing to answer questions about how social media potentially harms children. Zuckerberg opened by saying: "The existing body of scientific work has not shown a causal link between using social media and young people having worse mental health."

But many social scientists would disagree with that statement. In recent years, studies have started to show a causal link between teen social media use and reduced well-being or mood disorders, chiefly depression and anxiety.

A New York Times guest essay from Surgeon General Vivek H. Murthy calls for warning labels on social media platforms has Pitkin County leaders discussing how to protect local youth from the negative mental health effects of social media.

Pitkin County Public Health Director Jordana Sabella introduced Murthy's essay during a Thursday board of health meeting to jumpstart the discussion in Pitkin County about the harm of social media.

"It really draws the connection between social media among young people and the mental-health crisis that we're currently undergoing, knowing that there's a direct connection there," she said. "Science hasn't come to share exactly what percentage is affecting what, but the goal is we need to act now; we know enough to put the warning out."

Most teens use social media, often for hours on end. Some social scientists are confident that such use is harming their mental health. Now they want to pinpoint what explains the link.

There is also a growing problem that some social media owners are not addressing fake news and malicious posts; rather in the case of fake news they seem to encourage it and are entering relationships and deals with untrustworthy political entities to deliberately spread mistruth and propaganda.

Concern, and the studies, come from statistics showing that social media use in teens ages 13 to 17 is now almost ubiquitous. Two-thirds of teens report using TikTok, and some 60 percent of teens report using Instagram or Snapchat, a 2022 survey found. (Only 30 percent said they used Facebook.) Another survey showed that girls, on average, allot roughly 3.4 hours per day to TikTok, Instagram and Facebook, compared with roughly 2.1 hours among boys. At the same time, more teens are showing signs of depression than ever, especially girls (SN: 6/30/23).

As more studies show a strong link between these phenomena, some researchers are starting to shift their attention to possible mechanisms. Why does social media use seem to trigger mental health problems? Why are those effects unevenly distributed among different groups, such as girls or young adults? And can the positives of social media be teased out from the negatives to provide more targeted guidance to teens, their caregivers and policymakers?

In one longitudinal study, researchers — including Orben and Przybylski — used survey data on social media use and well-being from over 17,400 teens and young adults to look at how individuals' responses to a question gauging life satisfaction changed between 2011 and 2018. And they dug into how the responses varied by gender, age and time spent on social media.

Social media use was associated with a drop in well-being among teens during certain developmental periods, chiefly puberty and young adulthood, the team reported in 2022 in *Nature Communications*. That translated to lower well-being scores around ages 11 to 13 for girls and ages 14 to 15 for boys. Both groups also reported a drop in well-being around age 19. Moreover, among the older teens, the team found evidence for the Goldilocks Hypothesis: the idea that both too much and too little time spent on social media can harm mental health.

Concerns over the effects of social media use in children have been circulating for years, resulting in a massive body of scientific literature. But those mostly correlational studies could not show if teen social media use was harming mental health or if teens with mental health problems were using more social media.

Cause and effect

That was the approach Makarin and his team used in their study of Facebook. The researchers homed in on the staggered rollout of Facebook across 775 college campuses from 2004 to 2006. They combined that rollout data with student responses to the National College Health Assessment, a widely used survey of college students' mental and physical health.

The team then sought to understand if those survey questions captured diagnosable mental health problems. Specifically, they had roughly 500 undergraduate students respond to questions both in the National College Health Assessment and in validated screening tools for depression and anxiety. They found that mental health scores on the assessment predicted scores on the screenings. That suggested that a drop in well-being on the college survey was a good proxy for a corresponding increase in diagnosable mental health disorders.

Compared with campuses that had not yet gained access to Facebook, college campuses with Facebook experienced a 2 percentage point increase in the number of students who met the diagnostic criteria for anxiety or depression, the team found.

When it comes to showing a causal link between social media use in teens and worse mental health, “that study really is the crown jewel right now,” says Cunningham, who was not involved in that research.

The social media landscape today is vastly different than the landscape of 20 years ago. Facebook is now optimized for maximum addiction, Shrum, a consumer psychologist, says, and other newer platforms, such as Snapchat, Instagram and TikTok, have since copied and built on those features. Paired with the ubiquity of social media in general, the negative effects on mental health may well be larger now.

Orben and Przybylski’s 2022 work suggested, a teen not on social media might well feel worse than one who briefly logs on.

UK

One ongoing effort to understand social media use from this more nuanced vantage point is the SMART Schools project out of the University of Birmingham in England. Pedagogical expert Victoria Goodyear and her team are comparing mental and physical health outcomes among children who attend schools that have restricted cell phone use to those attending schools without such a policy. The researchers described the protocol of that study of 30 schools and over 1,000 students in the July BMJ Open.

Goodyear and colleagues are also combining that natural experiment with qualitative research. Talking to teens and those in their orbit is the best way to get at the mechanisms by which social media influences well-being — for better or worse, Goodyear says. Moving beyond big data to this more personal approach, however, takes considerable time and effort. “Social media has increased in pace and momentum very, very quickly,” she says. “And research takes a long time to catch up with that process.”

The real world consequences of all this evidence and where to from here

In many ways we are back in the dark ages thanks to social media; lawlessness, gossip and predation abound.

Even without malfeasance on social media, occupying young minds with endless trivia is not a healthy pastime in a fragile world being physically torn apart. Rather the planet and their future is being controlled by greedy, amoral miscreants.

Recognised negative issues related to social media include

- Doomscrolling
- Body dysmorphia
- Online/cyber bullying
- Misogyny
- AI generated sexual imaging

And the following issues that affect youth greatly are being ‘screened out’.

- Destruction of planet
- Greed and inequality
- Dictatorships /coercive control

Born into a world of brutal dictatorships where wealth is in the hands of the greedy few and with the natural world sullied, the oceans land and air polluted and climate change causing endless natural disasters, an uncertain future faces us all. Our youth have many real things to be depressed about. Of course many generations of people have faced such uncertainties but now they are apparent everywhere.

Social media has been both a purveyor of the awful truths and an unreliable escape.

Social media may also an ‘opiate’ for young people to divert them away from what is really happening on the planet they will inherit. Therefore those not addicted to social media may be in a worse condition than those committing suicide. They may have already ‘given up’.

Further social media’s opiate offerings can lead the young away from the real issues and ‘sugar coat’ an increasingly violent and corrupted world. While this offers immediate relief it is not a good longterm approach to life.

Give children back their carefree days of childhood - social media has no real regard for anything but money - time to treat them as they are, ignorant.

Millions of Australian children could be barred from using social media platforms under changes put forward by state premiers who want better protection of minors from online harm.

The leaders of States of NSW, Queensland and Victoria united on Monday in a push to lift age minimums on major platforms such as TikTok and the Meta-owned Facebook and Instagram.

All of the platforms require users to be at least 13 years old, but that limit could be lifted to as high as 16 under a proposal from NSW.

State leaders concede they might not have the power to legislate controls on the platforms, with several calling for a national regime.

NSW Premier Chris Minns said he wanted a minimum age of 16 for social media users, while Queensland counterpart Steven Miles nominated 14.

Victoria Premier Jacinta Allan did not specify a minimum age but called for the platforms’ limits to be raised or for Australia to set its own limits.

Meta and TikTok have been contacted for comment.

Mr Minns said he was moved to act after seeing social media's impact and his experience as a father of three boys. "Obnoxious" social-media algorithms were "designed to keep children glued to the device rather than ripping it away and speaking with family and friends and getting out of the house", he said.

NSW preferred a national approach but would go it alone if a federal age minimum of 16 could not be made to happen quickly, Mr Minns said.

His government was yet to determine what power it had to regulate platforms at a state level, he said.

The federal Labor government has indicated it supports tighter restrictions on children accessing social media, which Prime Minister Anthony Albanese has identified as a national issue.

Health Minister Mark Butler said a potential age limit was still being worked out while a verification trial was completed using funding allocated in the recent budget.

"We've got to get the age right and we've got to get the technological implementation right," he said.

Mr Miles said he had seen little evidence social media companies cared what Australian policy makers thought and it was time for tighter federal regulation.

WA Health Minister Amber-Jade Sanderson said her government was looking at what levers were available to protect minors from social media harm.

The NSW government on Monday also announced a state summit to look at the impact of social media platforms on young people involving policy makers, academics and company representatives.

This comes after the Australian eSafety Commissioner lost a Federal Court bid that would have forced X, formerly Twitter, to continue hiding videos of a stabbing that occurred in Western Sydney.

The debate in the UK took on a fresh resonance after Esther Ghey, the mother of the murdered teenager Brianna Ghey, added her voice to those highlighting the dangers of smartphones.

"We'd like a law introduced, so that there are mobile phones that are suitable for under-16s," she told the BBC's Laura Kuenssberg last Sunday. "So if you're over 16, you can have an adult phone, but then under the age of 16 you can have a children's phone, which will not have all of the social media apps that are out there now."

In demanding tougher curbs on big tech, she echoed other bereaved parents who believe social media played some role in the loss of their children – including Ian Russell, whose daughter Molly took her own life after viewing harmful content online.

Ghey's intervention came days after social media bosses including the Meta founder Mark Zuckerberg faced a ferocious grilling in the US Senate over their companies' role in facilitating child sexual exploitation and drug use. He told them: "I'm sorry for everything you've been through."

Some US lawmakers are already going further than castigating the titans of big tech: the conservative state of Florida is debating legislation aimed at banning under-16s from using social media.

In the UK, reports before Christmas suggested Rishi Sunak was considering tougher curbs on social media use by children – though the new Online Safety Act, years in the making and meant to protect children online, is still in the process of being implemented.

Esther Ghey has called for under-16s to have phones that do not feature social media apps.

A government spokesperson said ministers were focused on the act, but added: "We will always look at ways that children and other internet users can be kept safe online."

The Tory MP Miriam Cates, the co-chair of the New Conservatives caucus of MPs, recently called for the UK to follow Florida's lead with a social media ban – warning that "ordinary mums and dads are completely unequipped to do battle with the goliaths of Meta, TikTok and Apple". Calls for a crackdown come on the back of a growing body of evidence about the dangers of unfettered social media access.

The US surgeon general, Vivek Murthy, issued an advisory statement last year, warning of "growing evidence that social media use is associated with harm to young people's mental health".

He cited a study that showed adolescents who spent more than three hours a day on social media "face double the risk of experiencing poor mental health outcomes, such as symptoms of depression and anxiety".

Another US academic paper, which mapped the staggered rollout of Facebook across college campuses against data on students' health, showed that the arrival of the social network coincided with "increased symptoms of poor mental health, especially depression".

Despite the acknowledged dangers, few experts and campaigners the Guardian spoke to believed an outright ban on social media use by under-16s was workable, or even desirable – though all are united in believing tech firms must do more.

"The people we really want to be taking responsibility for children being safe online are the tech companies," said Rani Govender, the senior policy officer at the NSPCC.

"We completely recognise why so many parents and families are worried about this, but we think it keeps coming back to: how can we make these apps, these games, these sites, safer by design for children?"

She pointed to the importance of implementing requirements in the Online Safety Act for firms to take a tougher approach to enforcing minimum age limits for creating social media accounts, which are widely flouted. Lady Beeban Kidron, who campaigns for children's rights online, said there was understandable focus on removing harmful content from apps – but policymakers should also be focusing on their underlying design.

"What we have to concentrate on is: why are we allowing companies to give addictive products to children? There is no reason on God's earth that they have to be designed to be addictive. That is a business choice," she said. "You've basically got a faulty product here: they need to fix it."

Toxic masculinity

The world's increasing list of brutal and insane dictators are already an example of toxic masculinity but the social media platforms are now also getting into the act.

Academic research suggested the video-sharing app TikTok would serve up increasingly misogynistic content to boys who sought content about loneliness, or asked questions about masculinity.

"Algorithmic processes on TikTok and other social media sites target people's vulnerabilities – such as loneliness or feelings of loss of control – and gamify harmful content," warned the lead author, Dr Kaitlyn Regehr, who carried out the study in partnership with colleagues at the University of Kent.

A TikTok spokesperson rejected the findings, insisting: "Misogyny has long been prohibited on TikTok and we proactively detect 93% of content we remove for breaking our rules on hate. The methodology used in this report does not reflect how real people experience TikTok."

Deana Puccio, a former New York prosecutor, runs workshops in schools to help teens tackle issues such as sexual harassment and negative body image – including coping with the onslaught of social media.

She said the role of parents and schools was crucial. "This is about us all banding together, and the social media companies, and having an interdisciplinary approach to recognising the fact that, yes, our kids are suffering with mental health issues more than ever before – anxiety, depression, body image, self-harm – because of what they're seeing. There's no log off time," she said.

This comes after the eSafety Commissioner lost a Federal Court bid that would have forced X, formerly Twitter, to continue hiding videos of a stabbing that occurred in Western Sydney.

A healthy family media use plan that is individualized for a specific child, teenager, or family can identify an appropriate balance between screen time/online time and other activities, set boundaries for accessing content, guide displays of personal information, encourage age-appropriate critical thinking and digital literacy, and support open family communication and implementation of consistent rules about media use.

However, there is an overall climate of cyberbullying, lack of physical and personal contact, lack of physical exercise and team sports, lack of peer, social and community interaction, etc which are all mental health risks.

The Dangers That Come With Young Adults Utilizing Social Media

A study found that 14.8% of young people who were admitted to mental hospitals because they posed a risk to others or themselves had viewed internet sites that encouraged suicide in the two weeks leading up to their admission. The research was conducted on young people who were referred to mental hospitals because they constituted a risk to others or themselves. They prefer to publish pictures of themselves on social networking sites, which results in a steady flow of messages and pictures that are often and painstakingly modified to present people in a favorable light. This influences certain young individuals, leading them to begin making unfavorable comparisons between themselves and others, whether about their achievements, their abilities, or their appearance.

Summary

Digital technology is neither good nor bad in and of itself but safeguards and standards are necessary to protect the vulnerable. This should never be the role of the social media millionaires – they do not have the appropriate skills.

We all still live in a physical world; we need food, exercise, physical and social relationships, knowledge, compassion, human touch, empathy and intelligence. Are young people getting that from the passive 'screen world'?

It may also help if young people were ASKED what they want to see online and not have addictive material foisted upon them.

Negative effects of social media on teenagers include:

- Distraction from homework, exercise, and family activities.
- Disruption of sleep.
- Exposure to biased or incorrect information.
- Spreading rumours or sharing too much personal information and explicit photos.
- Feelings of envy, inadequacy, and less satisfaction with life.
- Correlation with depression, anxiety, low self-esteem, and loneliness.
- Lack of sport and communication with peers with positive feedback.

Online social interaction can promote healthy socialization among teens, especially when they're experiencing stress or social isolation. For youth who have anxiety or struggle in social situations, practicing conversations over social media can be an important step toward feeling more comfortable interacting with peers in person. Social media can also help kids stay in touch with their support networks. That can be especially important for kids from marginalized groups, such as LGBTQ+ adolescents who may be reluctant or unable to discuss their identity with caregivers (Craig, S. L., et al., *Social Media + Society*, Vol. 7, No. 1, 2021). In such cases, online support can be a lifeline.

"We know from suicide prevention research that it's critical for people to know they aren't alone," Alvord said.

The young also learn about themselves online. At the extreme, social media use can interfere with sleep, physical activity, schoolwork, and in-person social interactions. "The risk of technologies that pull us in is that they can get in the way of all the things we know are important for a teen's development, like sport and teamwork"

Parents should talk to their children often about social media and technology and also use strategies like limiting the amount of time kids can use devices and removing devices from the bedroom at night. Caregivers should also keep an eye out for problematic behaviors, such as strong cravings to use social media, an inability to stop, and lying or sneaking around in order to use devices when they aren't allowed.

There are efforts to make such changes. The Kids Online Safety Act (US), a bipartisan bill introduced in April, establishes a duty of care for social media companies to protect minors from mental health harms, sex trafficking, narcotics, and other dangers. Social media recommendations -

Youth using social media should be encouraged to use functions that create opportunities for social support, online companionship, and emotional intimacy that can promote healthy socialization.

Social media use, functionality, and permissions/consenting should be tailored to youths' developmental capabilities; designs created for adults may not be appropriate for children.

In early adolescence (i.e., typically 10–14 years), adult monitoring (i.e., ongoing review, discussion, and coaching around social media content) is advised for most youths' social media use; autonomy may increase gradually as kids age and if they gain digital literacy skills. However, monitoring should be balanced with youths' appropriate needs for privacy.

To reduce the risks of psychological harm, adolescents' exposure to content on social media that depicts illegal or psychologically maladaptive behavior, including content that instructs or encourages youth to engage in health-risk behaviors, such as self-harm (e.g., cutting, suicide), harm to others, or those that encourage eating-disordered behavior

(e.g., restrictive eating, purging, excessive exercise) should be minimized, reported, and removed; moreover, technology should not drive users to this content.

To minimize psychological harm, adolescents' exposure to "cyberhate" including online discrimination, prejudice, hate, or cyberbullying especially directed toward a marginalized group (e.g., racial, ethnic, gender, sexual, religious, ability status), or toward an individual because of their identity or allyship with a marginalized group should be minimized.

Adolescents should be routinely screened for signs of "problematic social media use" that can impair their ability to engage in daily roles and routines, and may present risk for more serious psychological harms over time.

The use of social media should be limited so as to not interfere with adolescents' sleep and physical activity.

Adolescents should limit use of social media for social comparison, particularly around beauty- or appearance-related content.

Adolescents' social media use should be preceded by training in social media literacy to ensure that users have developed psychologically-informed competencies and skills that will maximize the chances for balanced, safe, and meaningful social media use.

Substantial resources should be provided for continued scientific examination of the positive and negative effects of social media on adolescent development.

As a result, teen social media use often correlates with:

- depression
- anxiety
- low self-esteem
- envy
- loneliness.

Research carried out by the Australian government's eSafety Commissioner revealed that in a 6-month period in 2020, 4 in 10 teens (44% of those surveyed) had a negative experience online. This included being contacted by a stranger, sent inappropriate content or being deliberately excluded from events or social groups.

We are destroying their world and robbing them of their future and their innocence. Social media is distracting them from this obscene injustice - that is the insidious part - we are 'fiddling while Rome burns'.

The amazing reality of our situation as living, breathing conscious universe is squandered through greed and brutality of individual humans.

‘Ours’ are the children of the generations where far too many did not care about creating a better world for their children - or did not create children. I know the odds are stacked against us all but we should never stop fighting as our forebears never stopped fighting. Okay ‘we’ have no power and ‘they’ have all the power but it is the hallmark of decent humans to fight against all odds - that is how we achieve and up until recent times we did achieve - now we are too busy holidaying or on Foxtel or social media ourselves, not fighting for our mutual survival - some do of course, but most don’t.

Maybe depression and despair rules all our lives but we are better than that, and if we looked up from our devices we would be astonished by who we are, and ask what are we here for, this eternally self-replicating being called life. Is all the pain necessary? Is it a vital part of our existence to move us toward a better and brighter future for all life? Do we think it is all just about ‘us’?

What about the other species we are selfishly killing en masse? Once they were our cousins and earlier still our genetic brothers and sisters. None of us would be here without them. They know who and what we are. When you bond with a wild creature in love and trust you realise how incredibly intelligent and how incredibly forgiving they are.

We are not ‘lucky’ to live in the digital world and have a long and full life - we are wanton and destructive and indulgent.

Despair/anxiety is not a mental illness when it is a direct result of conditions faced. A world population doing little to nothing to address its major problems and where the world’s wealth is in the hands of criminals, dictators and the greedy, who are greedy for even more – is depressing.

Apathy in a dying world can be a symptom of extreme mental health problems. Unlike sadness or anger, apathy doesn’t involve strong emotions; rather, it’s a general lack of interest or motivation.

It is time to be a little less selfish and perhaps CREATE wonderful online experiences and facilities for all our children that improve mental health and provide realistic and positive approaches for their lives – that will help them have faith in humanity and help them build a better future than the current one we have created for them.