How can we achieve healthy skin for all?

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Introduction

Our skin is not only our biggest organ in both size and weight, but also the most prominent. No other organ represents us as much as our skin. Healthy skin is vital to the wellbeing of an individual. A functioning skin barrier is needed to provide an effective barrier, regulate body temperature, maintain moisture and for sensory function[1,2,3]. The skin reflects greater health and can be indicative of systemic diseases; awareness of skin changes can aid early diagnosis of diseases from HIV to malnutrition[2,4,10].

In all areas of the world skin disease is a main trigger for seeking medical help[4,5]. 24% of the UK population consult their GP for dermatological advice annually[5]. Skin disease is the most prevalent medical condition affecting children worldwide[6,7]. Skin disease can lead to stigmatisation, and has a high correlation with mental ill-health, disability and unemployment[6,8]. Particularly in less economically developed countries (LEDCs), skin disease is hugely underfunded and under-prioritised[4,6,8,9,10].

World Health Organization (WHO) added the mission “healthy skin for all” as a main component of their “health for all” campaign[9,11]. The International League of

Dermatological Societies, a global body for dermatology was founded to advance dermatological care, education and science[12]. There are many challenges to overcome to achieve "healthy skin for all", but I believe the principles outlined in this essay, such as education and good organisation of health services, should be starting steps towards "healthy skin for all".

Education

Education empowers the individual and is vital in achieving "healthy skin for all". Individuals can be taught to recognise signs and symptoms of skin disease, and when they should seek help[4]. Education can also change practices to improve skincare, such as introducing proper washing and hygiene measures to reduce skin infection and control parasites such scabies[13].

Education of healthcare professionals allows them to better serve the community they treat. Dermatological education for health professionals needs to be improved in many areas where dermatological care is lacking or non-existent[4]. A very successful education programme is that of the Regional Dermatology Training Centre (RDTC) in Moshi, Tanzania, which has trained clinicians from more than 13 countries across Africa, the latest of which is Malawi, a country with no specialist dermatologists[4,10].

The Centre has focused on identifying and assessing dermatological needs, education, and optimising the number people who can benefit[14,15]. Education is

concerned with local skin conditions, and encompasses closely related areas such as venereal disease and HIV detection[10]. They teach the principals of "community dermatology" a triad promoting knowledge, access to skincare and essential treatments[4]. Focusing care at a community level enhances familiarity of local diseases and embraces locally available, natural and sustainable treatments[4]. This successful model has shown the impact of using good education to combat skin disease and could be recreated in other areas with poor dermatological care.

Education is also key to improving skin health of individuals in more economically developed countries (MEDCs). Skin cancers are increasing in incidence and it is important to educate the public about the risks of sun exposure and appropriate protection measures[16,17] . In Australia, with the highest incidence of skin cancers worldwide, "Slip, slap, slop" was introduced in the 1980s to educate the public and expanded into the wider SunSmart campaign[16,18]. Yet rates of sun protection have remained unsatisfactory with 18% of adults and 25% of adolescents burning on summer weekends in Australia[19].

Campaigns clearly need to increase their influence. One way in which this could be achieved is increasing the availability of information in easily accessible formats, such as smartphone applications. "World UV" is one such application created by the British Association of Dermatologists (BAD) in collaboration with the Met Office. It allows a personalised UV risk to be calculated for over 10,000 worldwide locations and recommends the amount UV protection needed[20]. This app also provides information on skin type, so individuals can tailor information to their own skin. Over

10,000 downloads are estimated via Android alone[21]. Information to hand and on-the-go is more accessible than posters and leaflets in clinics and should increase the knowledge of the general public. The two formats can also be linked to posters using QR codes to advertise the application[22].

Campaigns to increase self-examination and increase awareness of the signs of skin cancers are also a good measure to enhance knowledge, and hopefully increase the proportion of skin cancers presenting early. Simple, clear and memorable formats of information are again needed. Patient education is an expanding component of dermatological care. Patients are taught the ABCDE of melanoma, the simple memorable initialism empowering them to recognise potentially cancerous changes early[23,24].

Campaigns can also be enhanced with the influence of celebrities. With a survey of 3000 British families showing that more children aspire to being famous (35%) than a being doctor (6%), perhaps celebrities have a much greater influence over adolescents than health professionals and we should utilise such role models[25,26]. Nicola Roberts, famous redhead from pop group “Girls Aloud”, has worked with Cancer Research UK to promote the dangers of tanning and produced the hour-long BBC documentary “The truth about tanning”[27,28]. Whilst the impact of such campaigns is difficult to measure, they certainly help to contradict the popular “healthy tan” rhetoric and reach a population that is difficult for medical professionals to influence.

Social Marketing

Society is increasingly appearance-orientated, which can further marginalise those with skin disease. We are also in an age where technology, in particular social media, can be used to spread campaign messages to a wider population than ever before[29]. "Natural is beautiful" campaigns should be strengthened, as behaviour seeking cosmetic beauty can often damage skin or increase risk of skin disease.

Two very prominent practices are skin tanning on UV tanning beds and skin bleaching, often with agents containing glucocorticoids or mercury iodide. Both practices stem from the perception that altered skin tone can reflect wealth and a higher social class[30,31]. So paramount is skin that practices altering pigmentation predate modern technologies; the Romans used psimython (power of lead) to lighten their complexions[32].

UV radiation is thought to be the cause of 90-99% of skin cancers[16]. UV is a major DNA mutant and greatly increases the risk of melanoma, squamous cell carcinoma and basal cell carcinoma[16]. Indoor UV tanning beds are particularly dangerous; when used by under 35s they increase the risk of melanoma by 75%[33]. Bleaching creams are often of unscrupulous origins and contain illegal compounds like hydroquinone, which can precipitate poor healing, skin infection, permanent disfigurement and even renal failure[34-37]. It should be a priority to counter damaging practices, again by empowering individuals with the education to make informed decisions and government regulation to protect the population from known harms.

In India 61% of the skincare market is composed of skin lightening products[36]. Research shows a disturbing worldwide trend, with the proportions of women using skin lighteners 40% in China, 53% in Senegal and 77% in Nigeria[34]. Skin lightening is increasingly popular in the UK among those of black African, Pakistani and Indian origin. A general practice survey in London found 22% of those of the aforementioned ethnic groups were using skin-bleaching agents, the majority of which were bought abroad[38].

Successes, in preventing cosmetic damage include the ban on tanning bed use by under-18s in Scotland in 2009 and in England and Wales in 2011[39]. Cosmetics containing mercury have been banned in the EU since 1976 and more recently by several African nations[34]. Those trading lightening creams illegally are being fined heavily; in March 2009 a man was issued an £80,000 fine for selling skin-lightening creams containing corticosteroids and hydroquinone[40].

A 2013 a survey of 407 adolescents showed 5.3% of under-18s still use sunbeds, demonstrating that stricter enforcement is still required[39]. There should also be an onus on the beauty industry to promote “natural is beautiful”, and discourage skin pigmentation alteration and stronger campaigns highlighting the dangers.

Nurses and community services

In LEDCs nurses are often better placed to coordinate skin management, but not taught to treat skin effectively[4, 41]. With sufficient education they could triage patients with skin disease to alleviate numbers visiting specialist dermatological services. The British-founded International Skin Care Nursing Group is promoting the importance of dermatological training for nurses worldwide[4, 41].

In the UK specialist dermatology nurses are also vital for treating patients. In the community there is a need for improved services for patients with skin disease to facilitate compliance to treatment. Increasingly people are living alone, and may be unable to apply topical treatment to difficult to reach areas, such as the back, particularly if additionally suffering mobility impairment[42]. Currently in the UK there is little provision in the community for such individuals, which can greatly impact on the health of their skin.

Focus on high risk groups

Within countries there can be certain groups disproportionately affected by skin disease. This can be due to genetic disposition, inequalities of wealth or inadequate provision of health services to their community[4]. To achieve “healthy skin for all” such groups need to be identified and appropriate measures implemented to tackle skin disease.

For example people with albinism (PWA) in Sub-saharan Africa are highly susceptible to UV induced skin cancers due to genetic loss of melanin pigment and compounded by a high environmental risk[43]. In resource-poor communities, there is little access to sufficient sunblock and preventative measures currently promoted in MEDCs. The albino project in Tanzania was launched by the RDTC to provide focused care for PWA[43]. Initiatives have included sun care cream and funding for 5000 protective hats for PWA[43].

Target endemic disease

"Skin care for all" was launched by the International Society of Dermatology (ISD) in Berlin in 2008, with the aim to eradicate endemic skin diseases such as scabies, onchoeratsis, tinea capitis and lice which cause great morbidity, often affecting up to 80% of a population[4, 44]. Scabies is considered a neglected disease. Even in MEDCs some deprived groups suffer endemic scabies, such as aboriginal Australians[45]. Scabies is frequently complicated by itch, sleep deprivation and streptococcal infection[44-46]. Treatment for scabies needs coordination for effective treatment[45] . Trials show low uptake of current treatments such as permethrin, and the need for a more practical, community-based approach to tackle endemic scabies[45-47].

Research

Research is needed in all dermatological areas to increase our understanding of skin disease and to identify evidence-based practice. However there are areas where little research has been conducted[48]. Epidermal parasitic skin diseases (EPSD) are particularly overlooked by research despite the high burden they are in LEDCs. Epidemiological research is needed to fully understand the impact of EPSD, and to demonstrate successful methods of eradication. With epidemiological knowledge of risk factors, public health strategies could be developed to alleviate the physical and social damage caused by EPSD.

Utilise advancing technology and low technology appropriately

Teleconferencing can enable specialist knowledge to travel further than before and can be particularly useful for skin disease, which is easily photographed and biopsied[4,49]. Expert opinion can transcend continents to reach those in remote areas[49]. Improvement of technological infrastructure is likely needed before teleconferencing could make a large impact, but is a developing possibility[50].

I have witnessed similar action level myself, where samples from a Zambian hospital are sent to the Southern General Pathology Department in Glasgow and results emailed back. This enables accurate pathological diagnosis for those treated in Zambia without the need for expensive equipment or specialist training. Such

practice also benefits those in Glasgow, increasing their recognition of tropical pathology and making fascinating teaching cases.

"Low technology" embraces effective and locally available remedies and traditional medicines[4]. These have the advantage of being accessible and sustainable in remote areas and comparatively inexpensive. Honey, with its antibacterial effect, can be used to dress wounds and maggots are used for debridement to promote healthy healing[4].

Prevent violence targeted at the skin

The skin is a vulnerable target for those wishing to commit violence, easily accessible and with lifelong impacts for the victim physically, psychologically and socially[51]. Acid attacks are depressingly frequent, and increasing in many countries. Acid attacks are often against women, specifically to target their beauty and self-esteem, highlighted in the media by the cases of Katie Piper and Naomi Omi[52,]. Attacks do occur against men, which are often gang-related and receive less media attention. Recorded attacks in the UK have trebled in 6 years to 144 attacks in 2012[53]. Concentrated acids are inexpensive and readily available; on amazon 2.5L of 98% sulphuric acid is £12.99[54].

Victims in the UK are fortunate to have NHS support and reconstructive treatment: many across the world do not. Improvement to physical treatment and psychological support for victims is needed. In Pakistan and Afghanistan, women are often

systematically attacked by their families as “honour attacks”, with the aim to scar and disfigure[51,52]. Sufferers are frequently unable to work, often resulting in homelessness and extreme poverty. In such nations further progress to empower women and rebalance cultural and social inequalities is needed. Raising awareness of effective first line treatments could improve the outcome for victims; hypertonic saline can neutralise acid and even displace acid from tissue via reverse osmosis[52]. Principally, attacks need to be stopped to reduce this cause of severe skin failure.

In Bangladesh acid attacks have reduced by 75% from 2002-2011, greatly due to measures implemented by the Acid Survivors Trust International (ASTI)[55,56]. ASTI work with governments to restrict supply of strong acids, increase conviction rates and punishments for perpetrators, promote the practice of first aid and establish on-going care for victims. Additionally they aim to decrease inequality between sexes, and increase the prominence of women in society.

Improving dermatological funding and general infrastructure

Dermatology is often underrepresented, due to comparatively low mortality rates. Conversely skin diseases often dominate at community level and are major causes of morbidity worldwide[4,10]. For governments with restricted healthcare budgets, skin disease is not seen as a priority[10]. They need to be made aware of the benefits of a population with healthy skin. In LEDCs continued infrastructure improvements such as installation of clean water and reliable transport will benefit skin health. Through

improved skin individuals will become more affluent, with less personal expenditure on skincare and less morbidity enabling them to become more economically active[4].

Conclusion

Whilst "healthy skin for all" may not be entirely achievable, I believe the International League of Dermatological Societies' aim of "skin care for all" is achievable. Access to adequate skincare should be of high importance to international health organisations and individual governments.

Those with skin diseases of genetic aetiology or permanently damaged skin may be unable to achieve "healthy" skin, but they should be able to access skincare to best enhance the skin they have. To attain a world with optimally healthy skin, skin damage needs to be prevented, be this through education against UV exposure or campaigns against acid attacks. Education for those who provide skincare and empowering individuals within populations need to be a focus of dermatological care and adequate funding for skincare available.

Word count: 2496

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