Cent. Eur. J. Med. • 9(1) • 2014 • 169-176
DOI: 10.2478/s11536-013-0246-6

VERSITA

Central European Journal of **Medicine**

Public (Skin) Health and the publishing source bias of Austrian information material

Research Article

Daniela Haluza*, Renate Cervinka

Medical University of Vienna
Institute of Environmental Health, Center for Public Health
Kinderspitalgasse 15, A-1090 Vienna, Austria

Received 19 April 2013; Accepted 28 August 2013

Abstract: Introduction. Lifestyle-associated exposure to natural and artificial Ultraviolet (UV) radiation is a causative factor for acute and chronic skin damage. Therefore, the availability of target group-specific information material on skin health promotion and disease prevention is a relevant Public (Skin) Health issue. Methods. Information material (n=21) on sun-related health aspects freely available in Austria and provided by health care providers, sunscreen producers, and indoor tanning parlors was compared using an iterative, 16-point screening tool. Results. We report on heterogeneous strategies in health (risk) communication regarding amount of communicated information regarding (1) educative content (p=0.045), (2) sun protection (p=0.002), and (3) skin health (p=0.004). Material from health care providers and sunscreen producers focused on the disadvantages of sun light and suggested preventive measures (p=0.001). In contrast, indoor tanning parlors predominantly used stimulating pictures (p=0.004) and positive arguments to solicit sun bathing (p=0.001). Conclusions. Public (Skin) Health campaigns and information materials could serve as a useful tool to increase public awareness regarding the hazards of exposure to sunlight. New strategies for skin health promotion could involve presenting standardized illustration and highlighting the benefits of UV light avoidance on appearance rather than provoking anxiety or psychological reactance.

Keywords: *Public (Skin) Health • Information material • Positive health communication • Skin cancer • Preventive medicine*

© Versita Sp. z o.o

1. Introduction

Tanning is the skin's response to exposure to Ultraviolet (UV) radiation from natural as well as artificial sources, associated with damage of epidermal cells and a potential risk for nonmelanoma and melanoma skin cancer [1,2]. Thus, health behaviour towards sun protective habits encompassing avoidance of exposure to direct sunlight during the peak daylight hours, wearing protective clothing, and applying an adequate amount of sunscreen is recommended to reduce sun-related health hazards [3,4]. Despite of public awareness campaigns addressing these health risks, a tanned skin is still associated with desirable appearance attitudes in Western societies [5]. Accordingly, skin health promotion is identified as an important Public Health issue.

Knowledge and health beliefs of skin health risks are influenced by diverse factor such as family, friends, and mass media [6]. Moreover, printed educative material could serve as important communication tools towards innovative approaches of decision-making in the doctors-patients relationship [7-10]. Additionally, online websites designed to educate interested consumers as well as patients are a cheap, easy and time-independently accessible tool for communicating aspects of preventive medicine [11,12]. Even though a considerable amount of online and printed information material are available for free, an overall evidence-based standard is missing so far, leading to a wide variety regarding quantity and quality of information, inconsistencies, and a publishing source bias.

* *E-mail: daniela.haluza@meduniwien.ac.at*

Early detection of skin cancer is significantly increased with basic knowledge of consumers, as the earliest sign of melanoma is a change in size, shape, or colour of a pre-existing skin lesion [13]. Consequently, health education employing visual figures depicting such signs is especially helpful for recognition and identification of skin modifications, but may also cause anxiety or provoke psychological reactance in readers. However, analyses of content and provided illustrations of information material are still missing.

In a previous cross-sectional survey, we reported on the perceived relevance of information material on skin health of Austrian residents, revealing that sunscreen producers were ranked as the most important publishing issue of respective materials (70%), followed by health care producers (61%), and indoor tanning parlours (17%) [14]. These findings were quite unexpected as from a Public Health perspective, informative material on medical issues should be mainly presented to consumers without an obvious publishing source bias, e.g. national melanoma preventive strategies.

Subsequently, in the present study, we addressed the multifaceted issue of Public (Skin) Health promotion in a hypothesis-driven comparison of the educative properties of material for skin/sun-related information available in Austria.

The aim of this analysis was to close the knowledge gap on (i) quantity and (ii) content of Austrian materials on skin health promotion in order to provide empirical evidence for uncovering new aspects of target-group specific skin health promotion on the basis of already existing education material. To analyze the different information strategies and in accordance with the classification suggested in Haluza et al. (2013), we retrieved materials by the publishing sources (1) health care providers, (2) sunscreen producers, and (3) indoor tanning parlors [14].

2. Material and methods

Collection of data took place during October 2010. We collected all freely accessible material in German, the official language in Austria. For the retrieval of material available online, an Internet search using the keywords 'sun protection (Sonnenschutz)', 'tanning (Bräunen)' and 'skin health (Hautgesundheit)' in German was performed on the Austrian search engines Google (http://www.google.at), and Yahoo (http://www.yahoo.at). In agreement with scientific findings and with how consumers might perform an online search, only the first 50 click-able web links given by each query were considered for analysis [15,16]. Totally, 23 websites were retrieved. However, we excluded 13 sites for the following reasons: No health information material (n=9) and advertising (n=4). Additionally, eleven printed educative materials obtainable for consumers at pharmacies, medical practices, hospitals, and tanning parlours in Austria were collected (Table 1). For further analysis, online information was printed to allow a direct comparison with a priori printed materials.

For standardized evaluation and processing of data, we developed four analysis tools; one checklist and three scales [17,18]. For an iterative screening checklist, we used characterising factors as suggested in the literature with a presumably impact on skin health promotion and tanning behaviour (Table 2) [19,20].

Materials were screened by two independent reviewers in a consensus-orientated process.

First, the material was assigned to one of the three designated groups by publishing source (health care providers, sunscreen producers, and indoor tanning parlours) as well as the mode of presentation (online or printed) [14].

Secondly, information on the respective issue of health risks, impairment of attractiveness, sun protective actions, education on sun protection, target and risk group specificity, and indication of age restrictions was assessed using a dichotomous check list (Yes=1, No=0).

Next, absolute numbers of criteria for sunscreen and sun exposure, as well as against sun exposure were counted.

Depicted images were quantified and differentiated in two subtypes. We defined (1) "illustrations of well being" as showing smiling, attractive people, generating a pleasant feeling of wellbeing and happiness, whereas (2) "illustrations of side effects" were specified as non-appealing illustrations, giving an idea of acute and chronic side effects of sun exposure, e.g. melanoma, sun burn, skin aging.

Finally, we assessed the total amount of pages including cover pages.

For statistical data aggregation, amount of ticked "Yes" in the dichotomous check list described above were counted and the mean of the sum score of provided information (termed "Educative power") was assessed for each publishing source.

For calculation of sum scores of provided education on skin health, we generated a scale including the factors health risks, impairment of attractiveness, protective actions, and education on sun protection, showing an acceptable internal consistency (Crohnbach`s Alpha: 0.741) [21]. For the covariate "Skin health", the mean of the sum score of this scale was computed on the basis of total counts.

Table 1. Publishing source, title, and publisher of information materials (n=21) were analyzed, listed in alphabetical order according to source.

Source	Title	Publisher
Online		
http://assets.krebsliga.ch/	Gemeinsam gegen Krebs	Health care providers
http://www.krebshilfe.de/	Risiko Solarium	Health care providers
http://www.krebshilfe.de/	Sonne ohne Schattenseite	Health care providers
http://www.sicherearbeit.at/	Sonnenschutz als Vorsorge	Health care providers
http://www.skwcds.ch/	Die Sonne genießen	Sunscreen producers
http://www.dream-colour.at/	Dream Colour	Tanning parlous
http://www.magicsun.at/	Magic Sun	Tanning parlous
http://www.sonnenstudio-sunpower.de/	Sunpower	Tanning parlous
http://www.sunrisecenter.de/	Sunrise	Tanning parlous
http://www.sunstar.at/	Sunstar	Tanning parlous
Printed		
Austrian Cancer Aid Society	Sonne ohne Reue	Health care providers
Health Insurance Fund Styria	Achtung. Sonne!	Health care providers
Social Insurance Agency	Richtig Bräunen	Health care providers
Vienna Doctor's Chamber	Vor Sonne schützen	Health care providers
Viennese Private Hospital	Krebs ist heilbar	Health care providers
Eucerin	Haut & Sonne	Sunscreen producers
La Roche-Posay	Werbefolder Anhtelios XL	Sun screen Sunscreen producers
Louis Widmer	Sonnenschutz für die ganze Familie	Sun screen Sunscreen producers
Vichy	Haut und Sonne	Sun screen Sunscreen producers
Austrian Economic Chambers	Sonne macht glücklich	Tanning parlous
UV-Power Licht GmbH	New Technology - Solar Guide	Tanning parlous

Further, to calculate sum scores of information on sun protection, we generated a scale consisting of the two variables "criteria for sunscreen" and "criteria against sun exposure", also showing an acceptable internal consistency (Crohnbach`s Alpha: 0.725). The covariate "Sun protection" was computed by the mean of the sum score of this scale.

The collected data were statistically evaluated using EXCEL database (Microsoft, Seattle, WA, USA) and SPSS Version 17.0 (SPSS Inc., Chicago, IL, USA). For all statistical analyses, level of significance was set at p=0.05.

Results of Univariate descriptive analysis were expressed as percentage (%), Mean and standard deviation (SD), respectively. We performed Kruskal-Wallis tests to report p-values of differences of publishing sources. Further, Mann-Whitney U test was used as contrast tests and respective findings were depicted in U statistics (U) median (Mdn), and p-value.

3. Results

The retrieved information material was clustered by publishing source: (1) health care providers (n=9, 43%,

Table 2. Checklist comprising 16 items for empirical analysis of retrieved information material on skin health. Yes=1 point, No=0 point; N=total amount.

No.	Item	Issue	Format
Basic characteristics			
1.	Publishing source	(1) Health care providers, (2) Sunscreen producers, (3) Tanning parlous	Single choice
2.	Mode of presentation	(1) Printed, (2) Online	Single choice
Quality of education on skin health			
3.	Health risks	Acute and chronic skin problems comprising sun burn, allergy, eye damage, all forms of skin cancer.	Yes/No
4.	Impairment of attractiveness	Premature skin aging, pigmentary lesion, wrinkles, solar elastosis, senile purpura, lentigos	Yes/No
5.	Protective actions	Applying and reapplying sunscreen, wearing clothes, hat, and sun glasses, avoid sun, staying in the shadow	Yes/No
6.	Education on sun protection	Education on relevance of Sun Protection Factor	Yes/No
7.	Target group specificity	Children, elderly people, gender, risk groups	Yes/No
8.	Risk group specificity	Fair-skinned people, children, patients with skin diseases, melanoma, or immunosuppressive medication	Yes/No
9.	Age restrictions	In Austria, the use of tanning parlours is not legal for children under the age of 18 years	Yes/No
10.	Examples	Use of case report, interview etc.	Yes/No
Quantity of education on skin health			
11.	Illustrations of well being	Total number of images showing smiling, attractive people generating a pleasant feeling of wellbeing and happiness	N
12.	Illustrations of side effects	Total number of images showing non-appealing illustrations, giving an idea of acute and chronic side effects of sun exposure, e.g. melanoma, sun burn, skin aging	N
13.	Criteria for sunscreen use	Total number of different notions of sunscreen	N
14.	Criteria for sun exposure	Total number of different notions of advantages of sun exposure	N
15.	Criteria against sun exposure	Total number of different notions of disadvantages of sun exposure	N
16	Page count	Page count including cover pages	N

number of pages: Mean=12.3, SD=9.9), (2) sunscreen producers (n=5, 24%, number of pages: Mean=12.0, SD=5.1), and (3) indoor tanning parlours (n=7, 33%, number of pages: Mean=10.4, SD=17.0, Table 3).

All assessed materials from health care providers presented facts on the harmful side effects of UV radiation and recommendation for sunscreen use.

None of the information material from indoor tanning parlours educated on reduction of attractiveness, effects of protective measures, considered target-group specific aspects nor mentioned legal age restrictions. Less than half of the assessed material in this category informed about special cautions of risk groups such as children or fair-skinned people, whereas advertisings from health care providers (89%) and sunscreen producers (60 %) educated more frequently on target-group specific issues.

Next, we compared publishing sources using Kruskal-Wallis tests, showing that provided information differed statistically significantly among groups (all $p<0.05$, Table 4).

For further detailed analysis of retrieved material, we assessed the relative amount and characteristics of illustrations. In accordance with table 3, material from tanning parlours showed more illustrations of well being (1.7 illustrations per page) compared to other publishing issues and no illustrations of side effects, whereas the other categories also depicted illustrations of side effects ($p=0.016$). Further, material published by tanning parlous (Mdn=111.22) used illustrations of well being more frequently than those provided by health care providers (Mdn=5, U=7, $p=0.004$).

What is more, contrast tests (Mann-Whitney U test) revealed that tanning parlous mentioned more arguments for sun exposure (Mdn=12.6) than those of health

Table 3. Characterisation of information materials, stratified by publishing source (in %).

Information characteristics	Publishing source (%)		
	Health care providers	Sunscreen producers	Tanning parlors
Health risks	100	60	71.4
Impairment of attractiveness	55.6	40	0
Protective actions	100	80	71.4
Education on sun protection	88.9	80	0
Target group specificity	22.2	80	0
Risk group specificity	88.9	60	42.9
Age restrictions	11.1	60	0

Table 4. Comparison of educative content stratified by publishing source. Absolute figures are presented in Mean and SD (in brackets). * $p<0.05$ (Kruskal Wallis test).

Information characteristics	Publishing source; Mean (SD)			
	Health care providers	Sunscreen producers	Tanning parlors	P-value
Illustrations of well being	2.7 (1.9)	4.7 (8.6)	9.8 (11.3)	0.04*
Illustrations of side effects	3.6 (2.9)	1.4 (2.2)	0	0.016*
Criteria for sunscreen	3.8 (2.4)	3.4 (2.4)	0.9 (0.9)	0.028*
Criteria for sun exposure	2 (1.5)	2 (3.1)	8.4 (9.4)	0.001*
Criteria against sun exposure	4.1 (2.5)	1.8 (2.0)	0.1 (0.4)	0.003*
Educative power	4.8 (1.5)	4.6 (2.6)	2.6 (1.1)	0.045*
Skin health	0.9 (0.2)	0.7 (0.4)	0.4 (0.2)	0.004*
Sun protection	3.9 (2.0)	2.6 (1.9)	0.5 (0.6)	0.002*

care providers (Mdn=5.3, U=3, p<0.001) and sunscreen producers (Mdn=3.2, U=1, p<0.001).

The defined categories of material showed statistically significant differences in “Educative power” (p=0.045), as material provided by health care providers scored highest with 4.8 points, second, sunscreen producers (4.6 points), and, third, tanning parlours (2.6 points). Regarding “Skin health”, we revealed significant differences (p=0.004) between the compared materials provided by health care providers (Mean 0.86), sunscreen producers (Mean 0.65), and tanning parlours (Mean 0.35). Concerning “Sun protection”, we found significant differences (p=0.002) between materials published by health care providers (Mean 3.9), sunscreen producers (Mean 0.5), and tanning parlours (Mean 2.6).

Notably, none of the analyzed materials presented representative case reports or examples for neither positive nor negative effects of sun exposure.

4. Discussion

The present study reported on information material on Public (Skin) Health promotion addressing German-speaking consumers in Austria.

This evaluation is the first scientific approach providing so far missing empirical data on hypothesized publishing bias concerning skin health information material available for the Austrian population.

The main findings focussed on the formal and content-related differences of 21 information materials distinguished by publishing source.

Preventive efforts have been proved to reduce mid- and long-term costs for public medical care of UV light-related skin diseases [22, 23]. Thus, we report that educative materials provided by health care professionals informed on acute and chronic health risks, protective measures, and risk groups with an additional focus on adequate sunscreen use.

Material from sunscreen producers was more likely to inform target group-specific (e.g. addressing children, adults, gender, fair-skinned people) and to bring arguments for sun protective behaviour as well as sunscreen application. One of the major objectives of material published by the cosmetic industry might be marketing of products for UV light-independent tanning. Although these products are preferable to UV radiation exposure from a Public (Skin) Health point of view, consumers of self-tanning lotions should be educated on the additional need for sunscreen and sun avoidance. Sunless tanning with chemical products such as dihydroxyacetone is not sufficient for skin protection, although the skin seems to be tanned [24,25].

In the USA, sunscreen companies were recently sued for using misleading advertising, deceiving millions of consumers into believing the products protect them from melanoma. Although sunscreens provided protection against UVB radiation mainly responsible for premature skin aging and sunburn, the law suit declared that sun lotions mostly did not shield UVA rays accountable for melanoma [26]. Although opposing marketing considerations and economic interests, information/ advertising material for sunscreen products should mandatory address the side effects of artificial UV light exposure and thus modify consumers´ knowledge on the topic of individual sun protective and tanning behaviour.

However, information material distributed by tanning parlours did inform about possible health risks of UV rays exposure (71.4% of the analyzed materials), maybe because of mandatory consumer protection and safety reasons. Obviously due to commercial interests, arguments for and advantages of (artificial) sun exposure were presented with pleasant pictures of beautiful, tanned people. This presentation might act as a multiplying factor for the positive association of the positive image of a tanned skin.

Ten information materials subsequently assessed in this study were presented online. Nowadays, the Internet has become a ubiquitous means of communicating health information to consumers and patients. However, readability and comprehensibility of Web-based medical information had been shown to be insufficient and thus, in need of improvement [27,28].

Focussing on the negative consequences of UV radiation exposure on appearance may be more likely to provoke life style modifications regarding tanning behaviour [29]. A critical aspect of knowledge transfer is the framing of information. The use of deterrent pictures may be more effective than education on long-term effects such skin cancer. As a distinctive design is memorable and easily recognisable, we recommend a standardized illustration of skin types, because the analyzed folders showed inhomogeneous interpretations of the established Fitzpatrick-classification (data not shown) [30].

Furthermore, the current systematic analysis of information material on skin health promotion (n=21) revealed a lack of several aspects we would consider to be important for up-to-date, evidence-based education on this important health hazard.

First, we were not able do find any examples or case reports that could be useful for the identification process of the reader with a fictive patient e.g. suffering from melanoma.

Second, none of the analyzed information materials reported on the Global Solar UV Index (UVI), a scale which was developed as a very useful tool for the quantification of UV radiation [31]. In synopsis with related scientific data, we strongly suggest educating about UVI as both the common knowledge and acceptance of the index are rather low [32].

The general public may be aware of new findings on various health promoting effects including longevity and cancer prevention of UV radiation [33,34]. However, these provoking outcomes are not yet integrated in the education on sun light risks with a strong emphasis on the necessity of sun protective behaviour.

There are several limitations that need to be acknowledged and addressed regarding the present study. As first limitation, we compared materials provided by different stakeholders with different aims. However, so far, empiric comparative data on the use or “exploitation” of stimulating pictures as well as arguments for or against UV light exposure have been missing. Additionally, we only considered cost-free material, whereas a survey on osteoporosis information materials also included products that were charged up to € 3 [35]. However, the scope of the study was to analyze printed and online material that was available for costumers to read for free. Furthermore, the retrieved amount of relevant material was quite small and rather heterogeneous, maybe due to the fact that Austria is - compared to other European countries - a rather small country. In consideration of these circumstances, online and printed folders were consolidated. Therefore the reported – though significant - differences of information strategies and publisher bias are not generalizable. The developed checklist and the scales could be refined and confirmed in a larger sample of materials.

Our results show that consumer information material on skin health promotion and skin cancer prevention available in Austria were inconsistent and thus barely useful to enhance informed decision making since content of material provided by sunscreen producers and indoor tanning parlours could be partly interpreted

to be misleading and persuasive. Ideally, such material should be standardized, evidence-based and published solely by medical associations.

Suggestions have been made how to develop evidence-based consumer information [36]. Yet, results of the present comparative analysis highlight that a major thread throughout the material for Public (Skin) Health promotion in Austria is still missing. Moreover, research on Austrian patient information material on both prostate-specific antigen (PSA) and mammography screening were not in accordance with international guidelines, suggesting a need for improved national strategies for health-related education [37,38].

In conclusion, information material provided by health care providers were concepted to prevent skin cancer and other side effects of sun bathing, whereas cosmetic information material clearly seek to activate potential sunscreen consumers. However, tanning studios provided information material stressing the exceptional advantages of having a tanned skin by promoting attractiveness and not educating on the potential negative health effects and consequences of tanning. These findings could stimulate physicians and other health professionals to consider which form is most appropriate to inform the general population on the advantages and disadvantages of exposure to natural and artificial UV light.

Conflicts of interest and source of funding

None declared.

References

[1] Cui R, Widlund HR, Feige E, Lin JY, Wilensky DL, Igras VE, D'Orazio J, Fung CY, Schanbacher CF, Granter SR et al: Central role of p53 in the suntan response and pathologic hyperpigmentation. Cell 2007, 128(5):853-864

[2] Green A, Autier P, Boniol M, Boyle P, Dore JF, Gandini S, Newton-Bishop J, Secretan B, Walter SJ, Weinstock MA et al: The association of use of sunbeds with cutaneous malignant melanoma and other skin cancers: A systematic review (vol 120, pg 1116, 2007). International Journal of Cancer 2007, 120(11):2526-2526

[3] Leiter U, Garbe C: Epidemiology of melanoma and nonmelanoma skin cancer-the role of sunlight. Adv Exp Med Biol 2008, 624:89-103

[4] Lesiak A, Slowik-Rylska M, Rogowski-Tylman M, Sysa-Jedrzejowska A, Norval M, Narbutt J: Risk factors in Central Poland for the development of superficial and nodular basal cell carcinomas. Arch Med Sci 2010, 6(2):270-275

[5] Cafri G, Thompson JK, Roehrig M, Rojas A, Sperry S, Jacobsen PB, Hillhouse J: Appearance motives to tan and not tan: evidence for validity and reliability of a new scale. Ann Behav Med 2008, 35(2):209-220

[6] Goulart JM, Wang SQ: Knowledge, motivation, and behavior patterns of the general public towards sun protection. Photoch Photobio Sci 2010, 9(4):432-438

[7] Joosten EAG, DeFuentes-Merillas L, de Weert GH, Sensky T, van der Staak CPF, de Jong CAJ: Systematic Review of the Effects of Shared Decision-Making on Patient Satisfaction, Treatment Adherence and Health Status. Psychotherapy and Psychosomatics 2008, 77(4):219-226

[8] Barnett J, Ogden J, Daniells E: The value of choice: a qualitative study. The British journal of general practice 2008, 58(554):609-613

[9] Nilsen ES, Myrhaug HT, Johansen M, Oliver S, Oxman AD: Methods of consumer involvement in developing healthcare policy and research, clinical practice guidelines and patient information material. Cochrane database of systematic reviews 2006, 3

[10] Haluza D, Kundi M, Vogl S: Sociodemographic Aspects are Associated with Breast Cancer Screening Behaviour of Female Patients: Results of a Cross-Sectional Survey. Gesundheitswesen 2013

[11] Kortum P, Edwards C, Richards-Kortum R: The impact of inaccurate Internet health information in a secondary school learning environment. J Med Internet Res 2008, 10(2):e17

[12] Alpay L, Verhoef J, Toussaint P, Zwetsloot-Schonk B: What makes an "informed patient"? The impact of contextualization on the search for health information on the Internet. Stud Health Technol Inform 2006, 124:913-919

[13] Magdum A, Leonforte F, McNaughton E, Kim J, Patel T, Haywood R: Sun protection - Do we know enough? Journal of plastic, reconstructive & aesthetic surgery 2012

[14] Haluza D, Cervinka R: Perceived Relevance of Educative Information on Public (Skin) Health: A Cross-sectional Questionnaire Survey. J Prev Med Public Health 2013, 46(2):82-88

[15] Eysenbach G, Kohler C: How do consumers search for and appraise health information on the world wide web? Qualitative study using focus groups, usability tests, and in-depth interviews. Bmj 2002, 324(7337):573-577
[16] Magunacelaya MB, Glendor U: Surfing for mouth guards: assessing quality of online information. Dent Traumatol 2011, 27(5):334-343
[17] Wolff AM, Taylor SA, McCabe JF: Using checklists and reminders in clinical pathways to improve hospital inpatient care. Med J Australia 2004, 181(8):428-431
[18] Fausett MB, Propst A, Van Doren K, Clark BT: How to develop an effective obstetric checklist. Am J Obstet Gynecol 2011, 205(3):165-170
[19] Cafri G, Thompson JK, Jacobsen PB: Appearance reasons for tanning mediate the relationship between media influence and UV exposure and sun protection. Archives of dermatology 2006a, 142(8):1067-1069
[20] Cafri G, Thompson JK, Roehrig M, van den Berg P, Jacobsen PB, Stark S: An investigation of appearance motives for tanning: The development and evaluation of the Physical Appearance Reasons For Tanning Scale (PARTS) and its relation to sunbathing and indoor tanning intentions. Body image 2006b, 3(3):199-209
[21] Ferketich S: Internal consistency estimates of reliability. Research in Nursing & Health 1990, 13(6):437-440
[22] Ekwueme DU, Guy GP, Jr., Li C, Rim SH, Parelkar P, Chen SC: The health burden and economic costs of cutaneous melanoma mortality by race/ethnicity-United States, 2000 to 2006. J Am Acad Dermatol 2011, 65:S133-143
[23] Housman TS, Feldman SR, Williford PM, Fleischer AB, Jr., Goldman ND, Acostamadiedo JM, Chen GJ: Skin cancer is among the most costly of all cancers to treat for the Medicare population. J Am Acad Dermatol 2003, 48(3):425-429
[24] Fu JM, Dusza SW, Halpern AC: Sunless tanning. J Am Acad Dermatol 2004, 50(5):706-713
[25] Faurschou A, Wulf HC: Durability of the sun protection factor provided by dihydroxyacetone. Photodermatology, photoimmunology & photomedicine 2004, 20(5):239-242
[26] Ibelle B: http://www.allbusiness.com/services/legal-services/4086005-1.html. 2006
[27] Risoldi Cochrane Z, Gregory P, Wilson A: Readability of consumer health information on the internet: a comparison of u.s. Government-funded and commercially funded websites. J Health Commun 2012, 17(9):1003-1010
[28] Walsh TM, Volsko TA: Readability assessment of internet-based consumer health information. Respir Care 2008, 53(10):1310-1315
[29] Mahler HI, Kulik JA, Gibbons FX, Gerrard M, Harrell J: Effects of appearance-based interventions on sun protection intentions and self-reported behaviors. Health Psychol 2003, 22(2):199-209
[30] Fitzpatrick TB: The validity and practicality of sun-reactive skin types I through VI. Archives of dermatology 1988, 124(6):869-871
[31] World Health Organisation: http://www.who.int/uv/intersunprogramme/activities/uv_index/en/index.html. 2011
[32] Carter OB, Donovan RJ: Public (Mis)understanding of the UV Index. J Health Commun 2007, 12(1):41-52
[33] Clipp SL, Burke A, Hoffman-Bolton J, Alani R, Liegeois NJ, Alberg AJ: Sun-seeking behavior to increase cutaneous vitamin D synthesis: when prevention messages conflict. Public health reports 2011, 126(4):533-539
[34] Donkena KV, Young CY: Vitamin d, sunlight and prostate cancer risk. Advances in preventive medicine 2011, 2011:281863
[35] Meyer G, Steckelberg A, Muhlhauser I: Analysis of consumer information brochures on osteoporosis prevention and treatment. Ger Med Sci 2007, 5:Doc01
[36] Bunge M, Muhlhauser I, Steckelberg A: What constitutes evidence-based patient information? Overview of discussed criteria. Patient Educ Couns 2010, 78(3):316-328
[37] Strobelberger M, Kaminski A, Gartlehner G: Austrian patient information materials on PSA-screening do not meet international evidence-based standards. Wien Med Wochenschr 2011, 161(3-4):89-98
[38] Rasky E, Groth S: Information materials on mammography screening in Austria--do they help women with informed decision? Soz Praventivmed 2004, 49(6):391-397