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Editorial

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Review Article

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This is the last issue this year that has papers from Turkey, Nepal, Libya, Australia and Lebanon

Paudel S et al, conducted a cross-sectional study was conducted in School of Nursing and Midwifery at Patan Academy of Health Sciences, Lalitpur, Nepal. A total of 331nursing students participated in the study. HPL behavior was evaluated using Walker's Health Promoting Lifestyle Profile (HPLP). Data were analyzed using independent t-test and analysis of variance test by SPSS Version 16 package with significance level of $p<0.05$. The mean age of the p articipants was 22.86±5.80 years (range 16 - 54). The BMI of respondents revealed that 69.8% had normal weight, 15.4% underweight and 14.8% overweight. The mean of the total health promoting behaviors were 2.74±0.41 out of a score of four. The HPLP score of Bachelor of Nursing (BN) was highest (2.83±0.49), whereas it was lowest (2.70±0.37) for the Proficiency Certificate Level (PCL) Nursing. Out of six sub categories of HPLP, Spiritual Growth (3.05±0.49) and Interpersonal Relationship (3.04±0.56) showed high scorers, while Physical Activities (2.32±0.60) and Nutrition (2.58±0.49) had low scorers throughout the all the level of students. The authors concluded that the physical activity and nutrition level of students was inadequate in general among all. It was expected that nurse would show more health-promoting behaviors than the general public. The hectic schedule of academic work as well as their societal orientation about life and living might have contributed toward such divergence. Low exercise score indicated the need for intervention programs for the nurses.

Mehmet R. H et al tried to understand whether or not smoking-induced endothelial injury triggers plasma triglycerides. Patients with plasma triglycerides lower than 60 mg/dL were put into the first, lower than 100 mg/dL into the second, lower than 150 mg/dL into the third, lower than 200 mg/dL into the fourth, and 200 mg/dL or greater into the fifth groups, respectively. The study included 875 cases (370 males). Although the mean age increased just up to plasma triglycerides value of 200 mg/dL, male ratio and smoking increased parallel to increased plasma triglycerides values, continuously. Interestingly, the most significant increase of smoking was seen just after plasma triglycerides value of 200 mg/dL, and there was no significant effect of aging or excess weight on this step. The authors concluded that plasma triglycerides may behave as acute phase reactants indicating disseminated endothelial injury and atherosclerosis. There may be significant associations between male gender, smoking, aging, excess weight, and plasma triglycerides values. FPG, LDL, WCH, HT, DM, COPD, CHD, and CRD were all deteriorated parallel to the increased male ratio, smoking, mean age, BMI, and plasma triglycerides values.

A paper from Libya looked at the skin humiliation/ degrading/ trauma/ disturbance.

Skin- is our protective layer against the eternal world, and our reflective mirror. It is basically the biggest organ of our body, and yet still being humiliated, manipulated, and degraded by different styles and tools application. There are certain practices which are harmful to the skin and pose risks as a whole and generally speaking. Some would think it is merely a decoration to the skin; however, some people went too far and pierced it, painted it, tattooed it, just to stand out as an ornament. Sometimes, you would only perceive a tiny island of a normal skin within different coloured paints of different massive forms. The authors suggested however; an alternative way, henna tattoo, cheap, easy to apply and it fades out in few days. It can be designed in different forms to the different taste as well as the likings in different places. Additionally, we tend to like changes across the time.

To conclude, it is wise to think carefully before having such colourful patterns on the skin, in different parts of the body. It would make sense, considering a job in the future, whereby many official jobs won't accept such a thing until a tattoo has been removed or made invisible.

A paper from Australia looks at the issues of Nursing and Climate Change. Climate Change brings many challenges for Nursing Staff and Carers generally as it will exacerbate problems of human health particularly in the elderly and those with chronic disease.

Nurses globally have also rallied politically to stress the need for a healthy environment to avoid the health consequences of climate change and its dorect effect on health along with increased numbers of natural disasters such as floods, fires, famines and hurricanes.

A position statement was announced by Annette Kennedy, ICN President at the International Council of Nurses (ICN) Regional Conference in Abu Dhabi. As the global voice of nursing, ICN's position is that nurses have a shared responsibility to sustain and protect the natural environment from depletion, pollution, degradation and destruction."

ANALYSIS OF HEALTH PROMOTING LIFESTYLE BEHAVIORS AMONG NURSING STUDENTS FROM A COLLEGE OF A HEALTH SCIENCES ACADEMY IN KATHMANDU, NEPAL

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Abstract

Introduction: Health promoting lifestyle (HPL) of nurses may affect the quality of care in healthcare settings. Nursing students not only learn from curricular activities, but mentoring from faculty members and seniors also helps them to develop HPL skills and practices. Therefore, this study was undertaken to assess the HPL behaviors and examine factors related to HPL among all levels of nursing students.

Methods: The cross-sectional study was conducted in School of Nursing and Midwifery at Patan Academy of Health Sciences, Lalitpur, Nepal, in September 2017. A total of 331nursing students participated in the study. The Body Mass Index (BMI) was calculated by dividing the weight by the height squared (kg/m2). HPL behavior was evaluated using Walker's Health Promoting Lifestyle Profile (HPLP). Data were analyzed using independent t-test and analysis of variance test by SPSS Version 16 package with significance level of $p<0.05$.

Results: The mean age of the participants was 22.86±5.80 years (range 16 - 54). The BMI of respondents revealed that 69.8% had normal weight, 15.4% underweight and 14.8% overweight. The mean of the total health promoting behaviors were 2.74±0.41 out of a score of four. The HPLP score of Bachelor of Nursing (BN) was highest (2.83±0.49), whereas it was lowest (2.70±0.37) for the Proficiency Certificate Level (PCL) Nursing. Out of six sub categories of HPLP, Spiritual Growth (3.05±0.49) and Interpersonal Relationship (3.04±0.56) showed high scorers, while Physical Activities (2.32±0.60) and Nutrition (2.58±0.49) had low scorers throughout all the levels of students.

Conclusion: The physical activity and nutrition level of students was inadequate in general among all. It was expected that nurses would show more health-promoting behaviors than the general public. The hectic schedule of academic work as well as their societal orientation about life and living might have contributed toward such divergence. Low exercise score indicated the need for intervention programs for the nurses.

Key words: Health promoting lifestyle, Nepal, Nursing students

Introduction

A healthy society starts with healthy youth [1]. The global health statistics averred that, 65% of individual health and quality of life related factors are correlated to lifestyle [2]. Lifestyle means way of life or style of living that reflects the attitudes and values of a person or group [2, 3]. Health behavior is skills and practices in order to stay healthy and to avoid diseases [1].Prevention of disease and promotion of health have always been the focus of public health all over the world [2]. Nepal has been endeavoring for the development and implementation of policies and strategies that make use of health promotion and evidenced based legislation, regulations and fiscal measures to reduce the consumption of tobacco and alcohol; promote the consumption of healthy food, promote physical activities and oral health [4]. It is viewed that investigate, plan, and implement measures to targeting young people to acquire and maintain healthy habits is worthwhile for the betterment of the society [5].

The WHO report [6] has suggested that Body Mass Index (BMI) is used as an indicator of obesity (>30) and overweight (25 – 29.9) as well as under-nutrition (<18.5), and warrants profound attention in terms of its relationship with HPLP. A healthy lifestyle directs happiness and full potentiality of living [6-7]. Health promoting lifestyle (HPL) is stronger determinant than genetic factors for quality of life [8]. Our previous study among undergraduate medical students from Nepal had 2.60±0.99 means score in health promotion lifestyle [9]. The HPL is self-initiated actions and perceptions [10]; and surrounding effects [8]. It is obvious that the people who live a healthy life most probably engage in health-promoting lifestyle. The HPLP score reflects the commitment of health maintaining act, so the better the score, the better will be the health profile [11].

In Nepal, nursing is the largest group of health professionals [12-13]. In order to display these positive behaviors, nurses must have sufficient knowledge about the subject of health promotion and adopt healthy lifestyle behaviors [14, 15]. They rely on a broad range of healthcare that comprises disease prevention and health promotion [16] and hence are subject to more stress at their worksite. As the largest group of healthcare providers in Nepal [17], nurses have the potential to exert a strong influence on health care practices in their nation [14-15].

The socio-economic status and age [18-19] is directly associated with better health-promoting behavior outcomes among university students. Senior students are better in health responsibilities [20]. Studies have shown that females engaged more in health responsibility behaviors and nutrition than stress management and physical activity [9, 21]. Anther study among undergraduate medical students showed that interpersonal relations and health responsibility increases as their education grade progresses but is poorer in stress management [20]. It seems that the health-promoting behaviors of nursing and health sciences university students are receiving increased attention worldwide [22-23]. However, this area is still under research in the case of PAHS. Thus, the purpose of this study was to determine the health promotion lifestyle behaviors of nursing students and to investigate the factors related to these behaviors.

Methods

A cross-sectional survey was used to assess nursing students at Patan Academy of Health Sciences in Nepal. The studied population comprised all current students studying at Proficient to Master level. The researcher team shared the research protocol with students in their respective classrooms and invited them tp participate in the study. The prospective participants were informed that participation in research was voluntary and were assured of confidentiality. If they were interested in participating in the study, they were asked to fill out the questionnaire.

All the students were eligible to participate and participation in the study was voluntary. Written consent was taken before filling out the questionnaire. Students dropped filled questionnaire into a designated box. After seven days of questionnaire distribution, we collected responses and counted 359 (94.2%). Twenty-eight participants were removed from the research due to their incomplete responses. The study was conducted among 331 nurses. The research protocol was approved from PAHS.

This study utilized the Health-Promoting Lifestyle Profile (HPLP) survey developed by Walker et. al. [24]. In this study, the HPLP scale had a Cronbach alpha of 0.877. We distributed the questionnaire to 381 students who presented on 8 November 2017 in their respective classrooms after a short orientation of study. The first part of the questionnaire included demographic questions; and the second part was related to lifestyle questions, which was designed in six aspects and included 52-items on a 4-point Likert scale (never, sometimes, often, and routinely) tool based on Pender's Health Promotion Model which contains 6 subscales: self realization (SR), health responsibility (HR), physical activity (PA), nutrition (N), interpersonal relations (IR) and stress management (SM) [25]. For each subscale, the scores for the questions were added and divided by the number of items in the subscale for obtaining the subscale scores. The lowest possible individual overall score of the HPLP is 52 (1 × 52) and the highest possible is 208 (4 × 52). The higher the mean score obtained, higher is the index of a health-promoting lifestyle.

Anthropometry measurement

Regarding anthropometric measurement, one of the co-investigators measured the height and weight of participants. The participants' height was measured using a portable stadiometer and weight was measured using digital scales. Height and weight were measured to the nearest 1cm and 0.1kg, respectively. BMI was calculated as weight (kg) divided by height squared (m2) and classified using the standard international adult BMI ranges: *underweight* (BMI <18.5), *healthy weight* (BMI = 18.5-24.9), *overweight* (BMI = 25.0-29.9), or *obese* (BMI >30) [6].

The analysis was performed using Statistical Package for the Social Sciences (SPSS) 16.0. Distribution of socio-demographic characteristics, and characteristics of lifestyle of the students were evaluated and differences between mean score in the HPLP overall and in the subscales were analyzed. The statistical differences between the groups were in terms of socio-demographics and HPLP. The HPLP scores were compared according to gender, residence type, school background and academic year. Scores were analyzed using independent t-test and analysis of variance (ANOVA) test. Multiple comparison tests were conducted to identify significant differences among university year (first, second, third and fourth) groups. The post-hoc test was performed to determine the direction and significance of differences between the groups. A $p<0.05$ was considered to be statistically significant.

Results

The survey was carried out among 331students representing proficiency certificate (40.5%), bachelor (50.5%) and master's (9.1%) level. The majority of students were from an urban area (82.8%), nuclear types of family structure (72.2%) and studied school level from private school (65%). Table 1 shows the results of demographic information of the respondents. In current residence, 39.3% had their own home in the town whilst 27.5% were residing in a college hostel. Major occupation of the father was service (33.2%) and business (26%).

The mean age of the participants was 22.86±5.80 years (range 16 - 54). The results showed that 61% of respondents had a monthly family income less than 50 thousand ($1 ~ 105 NRP), 43.2% had perception as good family health lifestyle, 47.1% self-rated own health lifestyle as good.

The majority (69.8%) of students' BMI falls into the normal range followed by underweight (15.4%) and Overweight (10.9%). Thought negligible, 3.9% were obese. (Health Promotion Lifestyle Profile II scores for the self-reported health-promoting behaviors among nurses are listed in Table 1).

The mean of the total health promoting behaviors were 2.74±0.41 out of a score of four. The result also indicated that the status of the health promoting behaviors of BN was highest (2.83±0.49) among them and least (2.70±0.37) was of PCL. Out of six sub categories, spiritual growth (3.05±0.49) and interpersonal relationship (3.04±0.56) were high scorers while physical activities (2.32±0.60) and nutrition (2.58±0.49) were low scorers throughout the level of students. The majority (70.5%) students were relatively good (mean score range 2.5 – 4) and the remaining were poorer. (Table 2)

The higher the education level, the HR and IR was greater but PA and SM was least. The BN students secured highest (2.83±0.49) HPL score among all level of students.

The respondents were assessed based on their self-declared geographical types of home town, types of school in which they attained secondary level education, and the average monthly family income. The students from urban background had high (2.75±0.40) HPLP mean score compared to rural (2.70±0.47). The mean score of nutrition among urban students was high (2.61±0.51) compared to students from rural backgrounds (2.45±0.58). There was a strong relation between nutrition and geographical types of home town where from they came ($p<0.001$).

Based on school types of secondary education, private school graduates have high (2.76±0.41) HPLP mean score compared to public school graduates (2.71±0.42). Here public school background is the proxy indicator for low socio-economic status. Among different HPLP sub categories; IR, SG and SM mean scores were higher among the private school group. Family type ($p = 0.007$) and average monthly family income ($p = 0.001$) was found strongly associated with HPLP mean score. Respondents from joint family have higher (2.82±0.40) HPLP mean score with high mean values in all six subcategories. On the other hand, respondents having more than one hundred thousand average monthly family income had consistently higher mean value in all six HPLP subcategories. (Table 3).

The respondents were asked to rate their own health lifestyle. About half of the respondents (49.1%) had rated satisfactory and almost a similar number of respondents (48.2%) rated good. The respondents who self-rated 'good' had consistently high mean HPLP score in all six subcategories compared to satisfactory. (Table 4)

The majority (69.8%) of students' BMI falls in the normal range followed by underweight (15.4%) and overweight (10.9%). Thought negligible, 3.9% were obese. The mean total score on the HPLP II for the participating nurses was 122.6±19.47.

The data shows that HPLP mean scores of BMI normal weight group and overweight group were 2.77±0.51 and 2.76±0.51 respectively whereas the HPLP mean scores of obese and underweight group was 2.63±0.30 and 2.72±0.29 respectively. The highest mean score of HPLP subcategories were SG and IP at the same time as PA subcategory was low mean scorer consistently in all four BMI categories.

Table 1: Demographics of the participants (N = 331)

Variable	Percentage (n)	Age (mean ± SD)
Geographical types of home town		
Rural	17.2 (57)	21.53±4.59
Urban	82.8 (274)	23.15±5.99
Current studying level		
PCL	40.5(134)	18.3±4 2.17
B.Sc.	21.5 (71)	23.01±3.97
BN	29.0(96)	25.77±3.65
MN	9.1(30)	33.43±6.45
Family type		
Joint/Extended	27.8(92)	23.10±5.80
Nuclear	72.2(239)	25.38±6.31
Types of School (studied grade 8,9,10)		
Community School	35(116)	24.82±6.82
Private School	65(215)	21.81±4.87
Current resident		
Own home	39.3(130)	23.10±5.80
With relative	5.4(18)	25.38±6.31
Rented-home	26.6(88)	21.88±4.27
Hostel	27.5 (91)	19.95±3.48
Others	1.2 (4)	34.17±10.03
Average monthly family income		
<50k	61.0 (202)	22.67±5.59
50 - 100k	32.3 (107)	22.79±6.10
100 - 200 k	4.8 (16)	24.56±6.53
>200 k	1.8 (6)	26.17±5.04
How do you rate your own health lifestyle		
Good	47.1(156)	22.20±5.05
Satisfactory	49.8(165)	23.69±6.45
Not satisfactory	3.0 (10)	19.70±2.41
How do you rate your family health lifestyle		
Good	43.2(143)	22.21±5.27
Satisfactory	52.0(172)	23.56±6.24
Not satisfactory	4.8 (16)	21.25±4.70
BMI classification		
Underweight	15.4(51)	20.27±3.23
Normal range	69.8(231)	22.39±4.97
Overweight	10.9(36)	27.03±8.71
Obese	3.9(13)	29.92±6.95
Health promotion life style		
Poor	31.4(104)	22.60±6.17
Relatively Good	68.6(227)	22.99±5.64

Table 2: Mean score of HPLP subcategories of respondents based on an academic level of respondents

Academy level	HR	PA	Nu	SG	IR	SM	HPLP
All students	2.68±0.48	2.32±0.60	2.58±0.53	3.05±0.49	3.04±0.56	2.74±0.51	2.74±0.41
PCL (134)	2.64±0.44	2.34±0.57	2.50±0.48	2.99±0.49	2.98±0.44	2.71±0.50	2.70±0.37
B.Sc. (71)	2.61±0.46	2.25±0.52	2.53±0.53	3.09±0.43	3.06±0.66	2.74±0.50	2.72±0.39
BN (69)	2.76±0.53	2.44±0.68	2.72±0.58	3.12±0.52	3.08±0.65	2.82±0.57	2.83±0.49
MN (30)	2.77±0.52	2.04±0.52	2.61±0.48	3.04±0.46	3.11±0.46	2.64±0.36	2.72±0.38

Note: HR = Health Responsibility; PA = Physical Activity; N = Nutrition; SG = Spiritual Growth; IR = Interpersonal Relation; SM = Stress Management

Table 3. Mean score of HPLP subcategories of respondents based on geo-types of home-town, school background, family type and average monthly family income

Categories	Descriptions	HR	PA	N	SG	IR	SM	HPLP	*P value*
Geo type of home town	Rural (57)	2.63±0.48	2.31±0.69	2.45±0.58	3.06±0.57	2.98±0.56	2.73±0.51	2.70±0.47	0.296
	Urban (274)	2.69±0.48	2.33±0.58	2.61±0.51	3.05±0.47	3.05±0.56	2.75±0.51	2.75±0.40	
School (grade 8-10) type	Public (116)	2.67±0.46	2.34±0.63	2.56±0.52	3.01±0.51	2.95±0.49	2.70±0.54	2.71±0.42	0.128
	Private (215)	2.68±0.49	2.31±0.58	2.59±0.53	3.07±0.47	3.08±0.59	2.77±0.50	2.76±0.41	
Family type	Joint (92)	2.78±0.47	2.43±0.63	2.69±0.53	3.08±0.53	3.07±0.53	2.82±0.56	2.82±0.40	0.007
	Nuclear (239)	2.64±0.48	2.28±0.58	2.54±0.52	3.04±0.47	3.02±0.57	2.71±0.49	2.71±0.40	
Average monthly family income	< 50,000 (202)	2.66±0.47	2.30±0.60	2.55±0.50	3.05±0.46	3.03±0.45	2.73±0.52	2.73±0.38	0.001
	50-100,000 (123)	2.68±0.59	2.34±0.58	2.61±0.55	3.04±0.53	3.04±0.70	2.74±0.49	2.75±0.44	
	>100,000 (6)	3.20±0.59	2.69±0.71	3.20±0.62	3.22±0.66	3.33±0.64	3.23±0.48	3.15±0.56	

Table 4. Mean HPLP subcategories of respondent based on self-rated Own Health Lifestyle

	HR	PA	N	SG	IR	SM	HPLP
Good (156)	2.71±0.51	2.39±0.60	2.67±0.52	3.11±0.49	3.07±0.67	2.82±0.52	2.80±0.44
Satisfactory (165)	2.67±0.46	2.27±0.60	2.52±0.52	3.00±0.46	3.02±0.42	2.69±0.48	2.70±0.38
Not satisfactory (10)	2.41±0.39	2.06±0.41	2.23±0.55	2.91±0.65	2.68±0.54	2.33±0.62	2.45±0.32

Table 5. Mean score of HPLP subcategories of respondents according to BMI classification

BMI classification		HR	PA	N	SG	IR	SM	HPLP
Under-weight	PCL (27)	2.53±0.30	2.03±0.40	2.37±0.28	2.85±0.39	3.07±0.43	2.59±0.45	2.58±0.23
	B.Sc. (13)	2.53±0.46	2.17±0.53	2.27±0.42	3.14±0.48	2.89±0.46	2.83±0.50	2.640.38
	B.N. (11)	2.66±0.42	2.43±0.50	2.70±0.49	3.05±0.34	2.76±0.41	2.75±0.41	2.73±0.32
	Total (51)	**2.56±0.37**	**2.15±0.48**	**2.41±0.42**	**2.97±0.42**	**2.96±0.45**	**2.69±0.48**	**2.63±0.30**
Normal range	PCL (94)	2.66±0.46	2.43±0.56	2.52±0.51	3.00±0.49	2.97±0.47	2.76±0.47	2.73±0.37
	B.Sc. (53)	2.62±0.47	2.26±0.54	2.60±0.52	3.09±0.43	3.12±0.70	2.72±0.51	2.74±0.39
	B.N. (68)	2.77±0.56	2.41±0.74	2.73±0.61	3.14±0.55	3.19±0.68	2.81±0.60	2.85±0.52
	M.N. (16)	2.76±0.50	2.13±0.50	2.61±0.42	3.00±0.32	3.03±0.40	2.63±0.38	2.70±0.32
	Total (231)	**2.69±0.50**	**2.36±0.61**	**2.61±0.54**	**3.06±0.49**	**3.07±0.59**	**2.75±0.52**	**2.77±0.51**
Over-weight	PCL (10)	2.73±0.60	2.45±0.77	2.63±0.59	3.36±0.57	2.88±0.52	2.79±0.78	2.81±0.57
	B.Sc. (4)	2.61±0.35	2.25±0.23	2.33±0.46	2.81±0.33	2.72±0.53	2.56±0.26	2.55±0.32
	B.N. (13)	2.76±0.60	2.60±0.58	2.67±0.64	3.00±0.53	2.79±0.60	2.91±0.55	2.79±0.53
	M.N. (9)	2.81±0.69	1.96±0.53	2.67±0.63	3.14±0.61	3.21±0.57	2.71±0.41	2.77±0.51
	Total (36)	**2.75±0.58**	**2.36±0.63**	**2.62±0.59**	**3.11±0.55**	**2.91±0.57**	**2.79±0.57**	**2.76±0.51**
Obese	PCL (3)	2.59±0.28	1.96±0.19	2.70±0.26	2.56±0.19	2.67±0.11	2.17±0.40	2.46±0.11
	B.Sc. (1)	3.00±0.00	2.63±0.00	3.11±0.00	3.44±0.00	3.11±0.00	3.13±0.00	3.08±0.00
	B.N. (4)	2.78±0.27	2.41±0.45	2.86±0.19	3.31±0.33	3.11±0.18	2.88±0.51	2.90±0.17
	M.N. (5)	2.71±0.13	1.93±0.60	2.51±0.46	3.00±0.64	3.20±0.52	2.58±0.21	2.67±0.33
	Total (13)	**2.72±0.22**	**2.13±0.50**	**2.71±0.36**	**3.03±0.52**	**3.04±0.38**	**2.62±0.45**	**2.72±0.29**

Discussion

Health promotion lifestyle plays a great role in health hence societies all over the world have been increasingly renowned as seeking a measure to accomplish quality of health life [25]. It has entailed a higher role of nurses [25-28]. Nursing has gradually become an attractive professional discipline in Nepal. Students from different socio-economic background join this course. This study assessed overall means score on the HPLP for the respondent was 122.6±19.47.This showed that respondent's health promoting behaviors was satisfactory (<2.5 mean score) which is congruent with other studies [23];[27]. The respondents scored highest in SG (3.05±0.49), IR (3.04±0.56) and SM (2.74±0.51) in HPLP subcategories. It may foster respondents to accept the professional challenges in future. On the other hand, PA (2.32±0.60) and Nu (2.58±0.53) were lowest scored subcategories. Similar findings were observed by other studies conducted among the nursing students. [28-31].Besides socio-economic status, the college environment may have swayed such results [32-33]

Physical activity and nutrition are key determinants of healthy lifestyle [34-35] which are largely influenced by socio-economic status, education and focus interventions to target population. While calculating BMI, 15.4 % respondents were underweight and 10.9% were overweight [36-37] and Obese respondents (3.9%) are among the higher academic level.[26] The lifestyle related diseases are rapidly increasing in Nepal and all over the world which may be underpinned by poor Nu, PA, SM [35]. Therefore, there is an urgent need to incorporate HPLP activities in nursing education.

Most of the respondents (82.8%) were from an urban background. There is decreasing trend of physical activities and increasing use of processed food in urban settlements which may have contributed poor physical activities and nutrition. It is epitomizing to Nepalese society in general. The 61% respondents who claimed that their monthly family income was less than 50 thousand and about 6.6% had more than 100 thousand NRP. Students from higher income family groups had higher health responsibility and stress management with over HPLP mean score (3.15±0.56). [26][32] Besides, about a quarter (27.5%) of students were residing in college hostel where they may get a monotonous diet and may compromise fruits and nuts. Above all conditions may embrace the (poor) nutrition status of the students. Even though, 47.1% students self-rated their own health lifestyle as good and 3% as not satisfactory, the remaining were satisfactory.

The mean score of health promoting behaviors was higher (2.83±0.49) among BN students. They are high scorers in SG, Nu, PA, SM subcategories of HPLP compared to respondents from other academic levels. Despite this, none of the academic level students have obtained PA mean score relatively good (2.5 – 4 HPLP mean score).

Conclusion

This study determined specific demographics related to health-promoting lifestyle behaviors among nurses. These included geographical background of residence, type of school, family types and average family income. Nurses in this study showed relatively good levels of overall health-promoting behaviors. The urban students were relatively good in nutritional status compared to rural based students which are statistically strongly significant. The socio-economic status (p=0.296) and geographical types of residence (p=0.128) have low relation, while family type (p=0.007) and family income (p=0.001) have strong significant relations in HPLP. The physical activity and nutrition level of students was inadequate in general among all. It was expected that they would show more health-promoting behaviors than the general public. The hectic schedule of academic work as well as their societal orientation about life and living might have contributed toward such divergence. The students from higher academic levels (MN) had poor PHL. The results of the study implied the need for organized physical activity and nutrition programs for students based on specific requirements and needs. In order to get better insight into healthy lifestyle behaviors (causality and effect), further research needs to be carried out including a representative sample from different universities and using a combination of self-reported and observational research methods.

Limitation: While computing results, data from one University college from Lalitpur Nepal was collected. Thus findings may not generalize to all students or all young adults.

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SMOKING-INDUCED ENDOTHELIAL INJURY TRIGGERS PLASMA TRIGLYCERIDES

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Abstract

Background: We tried to understand whether or not smoking-induced endothelial injury triggers plasma triglycerides.

Methods: Patients with plasma triglycerides lower than 60 mg/dL were put into the first, lower than 100 mg/dL into the second, lower than 150 mg/dL into the third, lower than 200 mg/dL into the fourth, and 200 mg/dL or greater into the fifth groups, respectively.

Results: The study included 875 cases (370 males). Although the mean age increased just up to plasma triglycerides value of 200 mg/dL, male ratio and smoking increased parallel to increased plasma triglycerides values, continuously. Interestingly, the most significant increase of smoking was seen just after plasma triglycerides value of 200 mg/dL, and there was no significant effect of aging or excess weight on this step. Mean body mass index (BMI) was only normal in patients with plasma triglycerides values lower than 60 mg/dL. Although fasting plasma glucose (FPG), hypertension (HT), diabetes mellitus (DM), chronic obstructive pulmonary disease (COPD), and chronic renal disease (CRD) increased parallel to the increased triglycerides values continuously, low density lipoproteins (LDL), white coat hypertension (WCH), and coronary heart disease (CHD) increased just up to plasma triglycerides value of 200 mg/dL.

Conclusions: Plasma triglycerides may behave as acute phase reactants indicating disseminated endothelial injury and atherosclerosis. There may be significant associations between male gender, smoking, aging, excess weight, and plasma triglycerides values. FPG, LDL, WCH, HT, DM, COPD, CHD, and CRD all deteriorated parallel to the increased male ratio, smoking, mean age, BMI, and plasma triglycerides values.

Key words: Male gender, smoking, early aging, excess weight, hypertriglyceridemia

Introduction

Chronic endothelial injury may be the most common kind of vasculitis, and the leading cause of aging in human beings (1-4). Much higher blood pressure (BP) of the afferent vasculature may be the major underlying cause by inducing recurrent injuries on endothelium. 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. Secondary to the chronic endothelial injury, inflammation, edema, and fibrosis, vascular walls thicken, their lumens narrow, and they lose their elastic nature; all of those reduce blood supply to end-organs, and increase systolic BP further. Some of the well-known underlying causes and indicators of the inflammatory process are physical inactivity, animal-rich diet, overweight, smoking, alcohol, hypertriglyceridemia, hyperbetalipoproteinemia, impaired fasting glucose, impaired glucose tolerance, white coat hypertension (WCH), cancers, chronic infections such as tuberculosis, and chronic inflammations such as rheumatologic disorders. Some of the irreversible consequences of the chronic inflammatory process include obesity, hypertension (HT), diabetes mellitus (DM), cirrhosis, peripheric artery disease (PAD), chronic obstructive pulmonary disease (COPD), chronic renal disease (CRD), coronary heart disease (CHD), mesenteric ischemia, osteoporosis, stroke, early aging, and premature death (5-7). Although early withdrawal of the causative factors may delay terminal consequences, after development of cirrhosis, COPD, CRD, CHD, PAD, stroke, or aging, endothelial destruction cannot be reversed effectively due to their fibrotic nature. The triggering etiologies and terminal consequences of the chronic inflammatory process were researched under the titles of metabolic syndrome, aging syndrome, or accelerated endothelial damage syndrome in the literature, extensively (8-11). Although its normal limits could not be determined clearly, higher plasma triglycerides values may be significant indicators of the metabolic syndrome (12). Due to the significant association between higher plasma triglycerides values and prevalence of CHD, Adult Treatment Panel (ATP) III adopts lower cutpoints for triglycerides abnormalities than did ATP II (13, 14). Although ATP II determined the normal upper limit of triglycerides as 200 mg/dL in 1994, World Health Organisation in 1999 (15) and ATP III in 2001 reduced their normal upper limit to 150 mg/dL (14). Although these cutpoints are usually used to define borders of the metabolic syndrome, there is suspicion about the safest upper limit of plasma triglycerides in the literature. On the other hand, smoking may be one of the most common causes of vasculitis worldwide. It is a major risk factor for the development of atherosclerotic endpoints including CHD, PAD, COPD, cirrhosis, CRD, stroke, early aging, and premature death (16, 17). We tried to understand whether or not smoking-induced endothelial injury triggers plasma triglycerides values in the present study.

Material and methods

The study was performed in the Internal Medicine Polyclinic of the Dumlupinar University between August 2005 and March 2007. Consecutive patients above the age of 15 year were included into the study. Their medical histories were learnt, and a routine check up procedure including fasting plasma glucose (FPG), serum creatinine, liver function tests, markers of hepatitis viruses A, B, C and human immunodeficiency virus, triglycerides, low density lipoproteins (LDL), high density lipoproteins (HDL), an electrocardiogram, and an abdominal ultrasonography were performed. A Doppler echocardiogram was performed just in required cases. Current daily smokers with six pack-months and cases with a history of three pack-years were accepted as smokers. Patients with devastating illnesses including type 1 DM, malignancies, hemodialysis, ascites, hyper- or hypothyroidism, and heart failure were excluded to avoid their possible effects on weight. Additionally, anti-hyperlipidemic drugs, metformin, or acarbose users were excluded to avoid their possible effects on blood lipid profiles or body weight (18, 19). Body mass index (BMI) of each case was calculated by the measurements of the Same Physician instead of verbal expressions. Weight in kilograms is divided by height in meters squared (14). Cases with an overnight FPG level of 126 mg/dL or greater on two occasions or already using antidiabetic medications were defined as diabetics (14). An oral glucose tolerance test with 75-gram glucose was performed in cases with a FPG level between 110 and 126 mg/dL, and diagnosis of cases with a 2-hour plasma glucose level of 200 mg/dL or greater is DM (14). CRD is diagnosed with a persistently elevated serum creatinine level of 1.3 mg/dL in males and 1.2 mg/dL in females. Additionally, office blood pressure (OBP) was checked after a 5-minute rest in seated position with a mercury sphygmomanometer on three visits, and no smoking was permitted during the previous 2-hours. A 10-day twice daily measurement of blood pressure at home (HBP) was obtained in all cases after a 10-minute education session about proper BP measurement techniques (20). An additional 24-hour ambulatory blood pressure monitoring was not required due to its similar effectivity with the HBP measurements (3). Eventually, HT is defined as a mean BP of 135/85 mmHg or greater on HBP measurements, and WCH as an OBP of 140/90 mmHg or greater but a mean HBP measurement of lower than 135/85 mmHg (20). An exercise electrocardiogram is performed just in cases with an abnormal electrocardiogram and/or angina pectoris. Coronary angiography is taken just for the exercise electrocardiogram positive cases. So CHD was diagnosed either angiographically or with the Doppler echocardiographic findings as the movement disorders in the cardiac walls. The spirometric pulmonary function tests were performed in required cases and the criterion for diagnosis of COPD is post-bronchodilator forced expiratory volume in one second/forced vital capacity of less than 70% (21). Eventually, patients with plasma triglycerides values of lower than 60 mg/dL were put into the first, lower than 100 mg/dL into the second, lower than 150 mg/dL into the third, lower than 200 mg/dL into the fourth, and 200 mg/dL or greater into the fifth groups,

respectively. The mean age, male ratio, smoking, BMI, FPG, triglycerides, LDL, HDL, WCH, HT, DM, COPD, CHD, and CRD were detected in each group and compared in between. Mann-Whitney U test, Independent-Samples T test, and comparison of proportions were used as the methods of statistical analyses.

Results

The study included 875 cases (505 females and 370 males), totally. The mean values of plasma triglycerides were 51.0, 78.3, 122.2, 174.1, and 325.8 mg/dL in the five groups, respectively. The mean age increased just up to the plasma triglycerides value of 200 mg/dL, and there was an increase of triglycerides about 7.8 mg/dL for each year of aging. Whereas male ratio increased parallel to the increased plasma triglycerides values, continuously (30.9% versus 51.2%, $p<0.001$). Beside that the mean BMI values were 24.6, 27.1, 29.4, 29.9, and 30.0 kg/m2 in the five study groups, respectively. In other words, only the cases with the plasma triglycerides values lower than 60 mg/dL had a normal mean BMI. Although FPG, HT, DM, COPD, and CRD increased parallel to the increased plasma triglycerides values continuously, LDL, WCH, and CHD increased just up to the plasma triglycerides value of 200 mg/dL. Mean HDL values were similar in all of the five groups interestingly ($p>0.05$ between all). Prevalence of smoking increased parallel to the increased plasma triglycerides values, continuously (16.6% versus 38.3%, $p<0.001$). Interestingly, the most significant increase of smoking was seen just after the plasma triglycerides value of 200 mg/dL, and there was no significant effect of aging or excess weight on this step (Table 1 - next page).

Discussion

Excess weight leads to structural and functional abnormalities in nearly all organ systems of the body (22). Adipose tissue produces leptin, tumor necrosis factor-alpha, plasminogen activator inhibitor-1, and adiponectin-like cytokines; all of those act as acute phase reactants in the plasma (23). Excess weight-induced chronic low-grade vascular endothelial inflammation may play a significant role in the pathogenesis of accelerated atherosclerosis in the whole body (1, 2). Additionally, excess weight may cause an increased blood volume as well as an increased cardiac output thought to be the result of an increased oxygen need of the excessive fat tissue. The prolonged increase in the blood volume may lead to myocardial hypertrophy terminating with a decreased cardiac compliance. Beside that, FPG and total cholesterol increased parallel to the increased BMI (24). Combination of these cardiovascular risk factors will eventually terminate with an increase in left ventricular stroke work and higher risks of arrhythmias, cardiac failure, and sudden cardiac death. Similarly, the prevalence of CHD and stroke increased parallel to the increased BMI values in another study (25), and risk of death from all causes including cancers increased throughout the range of moderate to severe weight excess in all age groups (26). The relationships between excess weight, increased BP, and plasma triglycerides values were described in the metabolic syndrome, extensively (12), and clinical manifestations of the syndrome include obesity, hypertriglyceridemia, hyperbetalipoproteinemia, HT, insulin resistance, and proinflammatory and prothrombotic states (10). Similarly, prevalence of smoking (42.2% versus 28.4%, $p<0.01$), excess weight (83.6% versus 70.6%, $p<0.01$), DM (16.3% versus 10.3%, $p<0.05$), and HT (23.2% versus 11.2%, $p<0.001$) were all higher in the hypertriglyceridemia group in another study (27). On the other hand, the prevalence of hyperbetalipoproteinemia was similar both in the hypertriglyceridemia (200 mg/dL or higher) and control groups (18.9% versus 16.3%, $p>0.05$, respectively) in the above study (27). Similarly, plasma LDL values increased just up to the plasma triglycerides value of 200 mg/dL in the present study. Beside that, the mean BMI values increased just up to the plasma triglycerides value of 150 mg/dL, significantly ($p<0.05$ for each step).

Smoking and alcohol have to be accepted as two of the major components of the metabolic syndrome since they cause chronic inflammations on the vascular endothelium, terminating with an accelerated atherosclerosis. Smoking's destructive effects are particularly prominent in the respiratory tract and lungs probably due to the highest concentrations of toxic substances found in the cigarette smoke there. The strong and irreversible atherosclerotic effects of smoking are the most clearly detected in Buerger's disease. It is an obliterative vasculitis characterized by inflammatory changes in the small and medium-sized arteries and veins, and it has never been reported in the absence of smoking in the literature. Eventually, the atherosclerotic effects terminate with early aging, end-organ insufficiencies, and premature death. According to our clinical observations, although smoking does not affect each individual with the same severity, the smoking history of pack-years should be added into the calendar age during calculation of physiological age of the patients in general. Probably, alcohol causes harm to vascular endothelium in similar ways with smoking but alcohol's main targets are the gastrointestinal tract and liver due to the highest concentrations of alcohol and its products there. Thus the drinking history of drink-years should also be added into the calendar age during calculation of physiological age of the patients in general. Due to the very low prevalence of alcoholism in Turkey, we did not include regular alcohol intake into the present study (28). On the other hand, smoking in humans and nicotine administration in animals may be associated with a decreased BMI (29). Evidence revealed an increased energy expenditure during smoking both on rest and light physical activity (30), and nicotine supplied by patch after smoking cessation decreased caloric intake in a dose-related manner (31). According to an animal study, nicotine may lengthen intermeal time and simultaneously decrease amount of meal eaten (32). Additionally, BMI seems to be the highest in former and lowest in current smokers (33). Smoking may be associated with a postcessation weight gain (34). Similarly, although CHD was detected with similar prevalences in both genders in a previous study (35), prevalence of smoking and COPD were higher in

Table 1: Characteristics features of the study cases according to the plasma triglycerides values

Variable	Lower than 60 mg/dL	p-value	Lower than 100 mg/dL	p-value	Lower than 150 mg/dL	p-value	Lower than 200 mg/dL	p-value	200 mg/dL or greater
Number of cases	84		207		235		148		201
Age (year)	35.6 ± 16.4 (17-79)	0.000	43.6 ± 17.5 (16-83)	0.009	47.7 ± 15.3 (16-82)	0.018	51.2 ± 12.6 (19-82)	Ns*	49.8 ± 12.3 (19-88)
Male ratio	30.9%	0.05>	39.1%	Ns	40.4%	Ns	43.9%	0.05>	51.2%
Smoking	16.6%	Ns	21.7%	Ns	26.3%	Ns	23.6%	0.001>	38.3%
BMI† (kg/m²)	24.6 ± 5.3 (16.7-45.9)	0.002	27.1 ± 5.9 (16.7-49.3)	0.000	29.4 ± 6.1 (18.4-51.0)	Ns	29.9 ± 4.8 (19.2-49.0)	Ns	30.0 ± 5.0 (21.0-51.1)
FPG‡ (mg/dL)	96.5 ± 35.3 (71-377)	0.016	106.6 ± 48.7 (59-400)	Ns	106.8 ± 35.1 (71-335)	0.006	117.3 ± 47.8 (68-386)	Ns	124.3 ± 55.3 (74-392)
Triglycerides (mg/dL)	51.0 ± 7.5 (27-59)	0.000	78.3 ± 10.8 (60-99)	0.000	122.2 ± 14.5 (100-149)	0.000	174.1 ± 14.2 (150-199)	0.000	325.8 ± 160.4 (200-1.350)
LDL§ (mg/dL)	98.6 ± 23.3 (56-161)	0.000	114.6 ± 33.0 (31-269)	0.000	131.1 ± 31.7 (56-228)	0.033	137.5 ± 32.4 (50-237)	0.020	129.0 ± 40.8 (10-239)
HDL‖ (mg/dL)	44.9 ± 12.3 (24-77)	Ns	48.8 ± 11.6 (33-91)	Ns	46.4 ± 10.5 (27-80)	Ns	43.7 ± 9.0 (22-67)	Ns	43.1 ± 9.1 (25-70)
WCH**	17.8%	0.05>	24.1%	0.05>	31.0%	Ns	35.1%	Ns	32.3%
HT***	8.3%	0.001>	15.9%	0.05>	21.2%	Ns	22.2%	Ns	26.3%
DM****	2.3%	0.001>	11.1%	Ns	13.6%	Ns	18.2%	0.05>	24.3%
COPD*****	4.7%	0.01>	9.1%	0.01>	14.0%	Ns	12.8%	0.05>	18.4%
CHD******	4.7%	0.001>	10.1%	Ns	11.4%	Ns	14.8%	Ns	11.9%
CRD*******	0.0%	Ns	1.9%	Ns	0.4%	0.01>	2.0%	0.01>	4.9%

*Nonsignificant (p>0.05) †Body mass index ‡Fasting plasma glucose

§Low density lipoproteins ‖High density lipoproteins **White coat hypertension

***Hypertension ****Diabetes mellitus *****Chronic obstructive pulmonary disease

******Coronary heart disease *******Chronic renal disease

males against the higher BMI, LDL, triglycerides, WCH, HT, and DM in females. This result may indicate both the strong atherosclerotic and weight decreasing roles of smoking (36). Similarly, the incidence of myocardial infarction is increased six-fold in women and three-fold in men who smoke 20 cigarettes per day (37). In another definition, smoking may be more dangerous for women probably due to the higher BMI and its consequences in them. Parallel to the above results, the proportion of smokers is consistently higher in men in the literature (19). So smoking is probably a powerful atherosclerotic risk factor with some suppressor effects on appetite. Smoking-induced appetite loss may be related with the smoking-induced vascular endothelial inflammation in whole body, since loss of appetite is one of the major symptoms of disseminated inflammation in the body. Physicians can even understand healing of patients via their normalizing appetite. Several toxic substances found in the cigarette smoke get into the circulation by means of the respiratory tract and lungs, and cause a vascular endothelial inflammation in whole body until clearance from the circulation. But due to the repeated smoking habit of the individuals, the clearance never terminates. So the patients become ill with loss of appetite, permanently. In another explanation, smoking-induced appetite loss is an indicator of being ill instead of being healthy (31-33). After smoking cessation, appetite normalizes with a prominent weight gain in the patients but the returned weight is their physiological weights, actually.

Although the obvious consequences of excess weight on health, nearly three-quarters of cases above the age of 30 years have excess weight (38). The prevalence of excess weight increases by decades, particularly after the third decade, up to the eighth decade of life (38). So 30th and 70th years of age may be the breaking points of life for weight, and aging may be the major determiner factor of excess weight. Probably, partially decreased physical and mental stresses after the age of 30 years, and debility and comorbid disorders-induced restrictions after the age of 70 years may be the major causes for the changes of BMI at these ages. Interestingly, the mean age and BMI increased just up to the plasma triglycerides values of 200 mg/dL and 150 mg/dL, respectively, in the present study. So smoking remained as the major causative factor for the hypertriglyceridemia above the plasma triglycerides value of 200 mg/dL. Beside that, the mean BMI values were 24.6, 27.1, 29.4, 29.9, and 30.0 kg/m2 in the five study groups, respectively. In other words, only the cases with the plasma triglycerides lower than 60 mg/dL had a normal mean BMI. On the other hand, the mean age and triglycerides of the first group were 35.6 years and 51.0 mg/dL, respectively. They were 43.6 years and 78.3 mg/dL in the second, 47.7 years and 122.2 mg/dL in the third, and 51.2 years and 174.1 mg/dL in the fourth groups, respectively. In another definition, the triglycerides values increased about 7.8 mg/dL for each year of aging up to 200 mg/dL in the plasma. So aging alone may be another risk factor for chronic low-grade inflammation on vascular endothelium in whole body.

Although ATP III reduced the normal upper limit of plasma triglycerides as 150 mg/dL in 2001 (14), whether or not much lower limits provide some additional benefits for the human body is unclear (39). Similar to a recent study (40), prevalence of smoking was the highest in the highest triglycerides having group in the present study that may also indicate the inflammatory role of smoking in the metabolic syndrome, since triglycerides may behave as acute phase reactants in the plasma. FPG, BMI, HT, DM, COPD, and CRD increased parallel to the plasma triglycerides values from the first up to the fifth groups, continuously in the present study. As an opinion, significantly increased mean age by the increased plasma triglycerides values may be secondary to aging-induced decreased physical and mental stresses, which eventually terminate with excess weight and its consequences. Interestingly, although the mean age increased from the lowest triglycerides having group up to the triglycerides value of 200 mg/dL, then it decreased. A similar trend was also seen with the mean LDL values. These trends may be due to the fact that although the borderline high triglycerides values (150-199 mg/dL) are seen together with physical inactivity and overweight, the high triglycerides (200-499 mg/dL) and very high triglycerides values (500 mg/dL or greater) may be secondary to genetic factors, smoking, and irreversible consequences of the metabolic syndrome including obesity, DM, HT, COPD, cirrhosis, CRD, PAD, CHD, and stroke (14). But although the underlying causes of the high and very high plasma triglycerides values may be a little bit different, probably risks of the terminal endpoints of the metabolic syndrome do not change in them. For example, prevalence of HT, DM, and COPD were the highest in the highest triglycerides having group in the present study. Eventually, although some authors reported that lipid assessment can be simplified by measurements of total cholesterol (41), the present study and most of the others indicated a causal relationship between higher triglycerides and irreversible end-points of the metabolic syndrome (42).

As a conclusion, plasma triglycerides may behave as acute phase reactants indicating disseminated endothelial injury and atherosclerosis. There may be significant associations between male gender, smoking, aging, excess weight, and plasma triglycerides. FPG, LDL, WCH, HT, DM, COPD, CHD, and CRD all deteriorated parallel to the increased male ratio, smoking, mean age, BMI, and plasma triglycerides in the present study.

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NURSING IN AN ERA OF CLIMATE CHANGE

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Abstract

Climate Change brings many personal and professional challenges for Nursing Staff and Carers as it will exacerbate problems of human health, particularly, in the elderly and those with chronic disease. Furthermore it will see increased numbers of natural disasters such as floods, fires, famines and hurricanes and a spread of disease into new latitudes.

Nurses globally have also rallied politically to stress the need for a healthy environment to avoid the health and extinction consequences of climate change.

A position statement was announced by Annette Kennedy, ICN President at the International Council of Nurses (ICN) Regional Conference in Abu Dhabi. “As the global voice of nursing, ICN’s position is that nurses have a shared responsibility to sustain and protect the natural environment from depletion, pollution, degradation and destruction.”

This paper looks at some of the issues, some of the studies and some of the responses

Key words: climate change, nurses

Introduction

Most countries of the world have accepted the reality of human induced climate change and rising global temperatures. The rates of response and remediation of the factors that have changed our climate have however had a varied response and commitment.

While it will cause global havoc, cause extinctions and put all populations under severe stress there are certain groups of people who will be more affected than other s by climate change.

These include those living in low lying islands e.g. island nations in the South Pacific and those in low lying delta areas e.g. Bangladesh and parts of India.

There will also be effects on those who will need to respond to natural disasters caused by climate change, such people as fire-fighters and other disaster relief personnel and of course the healthcare workers.

The most vulnerable groups as far as climate change and health is concerned are the elderly and those living with chronic and debilitating disease. The socio-economic status of people will also have an impact on how they can prepare themselves for climate change. There will also be the spread of disease into new regions and front line health care workers will need to be alert for factors such as increased heat stress and consequently dehydration and new disease outbreaks, infections and infestations.

Triage services will be increasingly required after fires, floods and hurricanes.

Health consequences of Climate change

Elderly people are known to be more vulnerable than the general population to a range of weather-related hazards such as heat waves, icy conditions and cold periods while at the same time there are large increases in the proportion of elderly in the population meaning more vigilance is required and a smaller proportion of the population will need to cater for an increasingly larger proportion of the population. Hospitals will come under increasing pressure both in terms of financial aspects and in terms of workforce/ nursing numbers.

For the elderly suffering from dementia and other disabilities additional monitoring services will be required.

Europe

An average of 2,000–3,000 deaths occur in Finland each year in the cold season with the majority among persons aged 65 and older with about 50,000 injuries recorded annually in Finland during the winter period due to slippery pavement conditions (1). In Russia an estimated 55,000 deaths were recorded in the 2010 heat wave. More recently the Arctic fires in Siberia affected air quality in the endemic regions exacerbating lung health conditions such as COPD and emphysema. In the 2003 heatwave that continued over most of the European summer, more than 70,000 people died. France was among the worst-affected countries, with 15,000 deaths in August alone. In the UK, the summer saw more than 2,000 heat-related fatalities.

The coping capacity of the elderly to respond to extreme weather can also be limited due to impaired mobility, isolation, mental health conditions and poor access to health and welfare services, as well as reduced economic circumstances preventing purchase or installation of air conditioners, respite holidays and relocation to cooler regions. Also, failure of basic health and welfare monitoring was a contributing factor in the large numbers of excess deaths (around 70,000) reported during the major heat wave event in the 2003 in western and central Europe in 2003.

The factors that affect mortality during these episodes include higher (or lower) temperatures and number of consecutive high (or low) temperature days without respite; the increasing number of elderly per head of population; economic factors – both personal and governmental, availability of pensions and other support services for the elderly, number of elderly living alone, number of health care personnel available.

USA

On average, 240 heat-related deaths occur annually in the United States. Exposure to extreme and prolonged heat is associated with heat cramps, heat syncope (fainting), heat exhaustion, and heatstroke (2, 3).

Under mild heat stress, acclimatization can increase the body's tolerance to heat stress. However, under extreme or chronic heat stress, the body loses this ability to respond and this results in increased hospital visits and increased number of deaths . Dehydration and volume depletion also limit the cardiovascular system . Consequently, patients with underlying diseases or the elderly may not have the physiological capability to adequately respond to heat exposure. (2,3)

Older adults are also more likely to have a chronic health condition such as congestive heart failure, and diabetes which are exacerbated by heat or cold related stress. As the US population aged 65 and over is set to nearly double by the year 2050 the number of people living with chronic health related conditions will greatly increase. (2,3)

Higher temperatures have also been linked to increased hospital admissions for older people with heart and lung conditions. Older adults with limited incomes may not use air conditioners or fans due to demand on electricity, this increasing operation costs.

Warming temperatures decrease air quality while more frequent wildfires raise the amount of pollution, dust, and smoke in the air, causing increasing hospital presentations. Poor air quality worsens respiratory conditions common in older adults such as asthma, emphysema and (COPD). Air pollution can also increase the risk of heart attack in older adults, especially those who are diabetic or obese.

Depending on where they live, some older adults can be more vulnerable to climate change-related health effects than others. For older adults residing in cities, factors such as the urban heat island effect may also present risks (2,3).

Australia

In Australia increased number of days over 35 degrees contributes to heat stress in vulnerable groups such as the elderly and remote Indigenous communities. Many areas in Australia may see daytime temperatures over 40 increasing to 45 degrees in some areas, There is also the possible migration further south of diseases currently confined to tropical areas, including dengue fever and the threat of malaria moving into northern latitudes of Australia. Climate change through prolonged droughts also poses significant threats to food and water security.

The accumulated health effects from these factors combined puts pressure on already stretched health and aged care facilities and the associated workforce. These sectors must be prepared and equipped to manage the health impacts of climate change.

Human health and wellbeing in all age groups is intrinsically connected to the quality of the natural environment. Air, sea and land pollution, famines, droughts, floods, tropical storms affect all people irrespective of age. Climate change and acidification of the oceans, will put pressure on global food resources, increase natural disasters, cause extinctions among plants and animal species including our food crops, and cause less favourable living conditions for all. The ultimate concern, especially with government inaction or political unwillingness to address the big picture items will put a strain on all members of society,

Nurses, midwives and assistants in nursing will be affected both in their work and personal lives by the effects of climate change. As the largest component of the health care workforce, they are at the forefront of providing care to communities and individuals. Treatment of climate change-related health conditions add an economic burden to the healthcare system. (4)

The Australian Nursing and Midwifery Federation have put out the following statement (4):

1. Urgent action needs to be taken by government and all sectors of the community to: limit potential temperature increases by reducing and limiting the release of carbon dioxide emissions from fossil fuels into the atmosphere; implement non-fossil fuel sources of energy; and prepare the health sector to deal with existing and future health effects of climate change.

2. As members of the community, nurses, midwives and assistants in nursing, need to participate in the broader climate change debate, utilising their networks to communicate with politicians, the media and the community on the importance of reducing carbon emissions.

3. Nurses, midwives and assistants in nursing have an important role to play within health and aged care facilities to identify opportunities, shape policy and bring about lower emissions from service provision.

4. Research efforts must be focussed on clarifying and quantifying the negative health effects associated with climate change in order for the health sector to be able to understand and best respond to those health conditions as they arise.

5. The existing and future nursing and midwifery workforce should be educated to understand and respond to health conditions related to climate change.

Employers should:

1. acknowledge and support nurses, midwives and assistants in nursing involved in environment and sustainability groups in their workplaces to bring about efficient and sustainable practices;

2. support nurses, midwives and assistants in nursing to implement sound and viable climate change initiatives;

3. showcase the efforts and successes of nurses, midwives and assistants in nursing to bring about environmentally sustainable workplace practices;

4. ensure there is a management team tasked specifically with implementing sustainable environmental practices and that nurses, midwives and assistants in nursing can fully participate;

5. ensure that health and aged care facility service delivery accreditation standards specify sustainable environmental standards for procurement, energy efficiency, water use and waste management;

6. ensure that sustainable planning, design and construction of new health care facilities and retrofitting of existing facilities is standard practice;

7. ensure that environmental sustainability drives procurement criteria;

8. endorse the ten sustainability goals outlined in the Global Green and Health Hospitals Agenda. These goals include:

Leadership; Chemicals; Waste; Energy; Water; Transportation; Food; Pharmaceuticals; Buildings; and Purchasing (5)

9. identify, facilitate, resource and implement environmentally sustainable practices that support the ten sustainability goals outlined in the Global Green and Healthy Hospitals Agenda (5)

Nurses are also acting as Advocates as well as front line carers. The International Council of Nurses (ICN) has released a new position statement on Nurses, climate change and health, which calls for governments, health system leaders, national nursing associations and nurse leaders to take immediate action to mitigate climate change and to support people and communities around the world to adapt to its impacts. (6)

The new position statement was announced by Annette Kennedy, ICN President at the ICN Regional Conference in Abu Dhabi.

ICN:

• Urges countries, which have not yet done so, to ratify the Paris Agreement without further delay.

• Strongly believes that nurses have a shared responsibility to sustain and protect the natural environment from depletion, pollution, degradation and destruction.

• Recognises that building climate change resilience must include efforts to improve and sustain the social and environmental determinants of health through sustainable development.

• Recognises the opportunity to take advantage of the massive potential to implement mitigation and adaptation policies that also have co-benefits to health.

• Calls on governments to scale-up financing for climate resilient health systems including developing models for healthcare workers to engage in sustainable practices. Donor countries should ensure that low- and middle-income countries are supported to strengthen their health systems and to reduce the environmental impact of healthcare.

• Encourages governments to reduce the risks they are expected to face from climate change by making choices in how they advance technology and industry and make investments in infrastructure and public policies that have less environmental impact.

• Calls on governments to invest in climate change and public health research, monitoring, and surveillance to improve understanding of the health co-benefits of climate mitigation and the health implications of adaptation measures at the community and national levels.

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THE SKIN HUMILIATION

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Skin is our protective layer against the external world, and our reflective mirror. It is basically the biggest organ of our body, and yet is still being humiliated, manipulated, and degraded by different styles and application of tools. There are certain practices which are harmful to the skin and pose risks generally speaking. Some would think it is merely a decoration to the skin; however, some people go too far and pierce it, paint it, and tattoo it, just to stand out as an ornament. Sometimes, you can only perceive a tiny island of normal skin within different coloured paints of different massive forms.

After all, those elements of the ink are not meant to enter the body, and additionally, certain medical tests will cause trouble for those people with tattoos. The skin's top layer can renew and replace itself, but not the deeper layer (dermis), which is highly vascular as well as innervated and will be very painful and messy to undergo this procedure of pigments introduction. Furthermore, the body will react back in a defense process and treat it as foreign substances in the body, where the immune system will be triggered in order to fight it and expel it but the ink particles are not quite big enough to be dealt with.

Not only this, the inks are made up of minerals, salts and metal oxides that are found in nature. They have different colours ranging between red, yellow or blue and they can oxidize in the skin. This ink is meant to be produced for printer inks or car paints, but not for human beings. Tattoos can make the skin more itchy and tender due to allergic reaction to chromium or cobalt ingredients in the ink. In some people, the tattooed skin can become bumpy and scaly, which is due to inflammation and infection. It can also interfere with MRI scans when needed to look inside the body because it has a strong magnetic field and will heat up the tattoo ink leading to burns and tattoo design distortion.

Why would people go to extremes by dyeing, staining, tattooing or piercing their skin? Why would they subject, torture, and disfigure their skin in that appalling way and to that extent, and not appreciate the way God gave it to us. Why do people not appreciate the beauty of it plain as it was created for us. Skin can react in different ways to the external inflictions. It can be inflamed, badly swollen, and it can trigger certain underlying auto-immune diseases, along with certain unknown granulomatous diseases. Despite this fact, tattooing is a humiliation to the skin; it is a total disfigurement.

How can it be tattooed totally with certain unknown figures just to follow fashion or a certain mindset? All medical science condemns such an act and conduct, and doesn't approve any pigments introduced for tattoos due to the severe reactions which are caused. Certain types of pigments are carcinogenic-linked. The fact is that a tattoo stays inside the skin eternally in its dermal layer after breaching its layer and channeling, introduced by the needle. Not only that, the pigment can travel through the blood and reach the liver, and the lymph nodes whereby it exercises its harmful effects. In addition, from a religion aspect of view, it is forbidden in Islam and in Christianity is considered a sin.

People apply it as a self-expression for whatever reasons they have; however, doing so can be dangerous as the tattooists needle can carry blood-borne diseases, for example, hepatitis B and C, HIV and tetanus, all of which have long term-ill effects on the body. Tattooing can open up the skin tunnels whereby bacteria can access and cause infections, and sepsis. In fact, it can affect all body vital organs and cause organ failure across the cumulated years.

Despite all this, and despite the tattoo experience, people regret them at certain stages of their life and want them removed. So after that realization they start their journey searching for different means to have them removed. There is, however, no effective way to remove tattoos permanently. In the old days they were rubbing off the outer skin with a wire brush or salt. However, there are different laser modalities on the market currently; however, none will help remove them permanently and for good. Additionally, sometimes one laser session might cause the tattoo to be irreversibly darkened, due to the iron pigment and the condition can end up with surgical excision using the same laser that failed to get rid of the colour. Those lasers are expensive and they can burn and

and disfigure the skin. They can also cause painful scars and keloids.

There is, however; an alternative method;, a henna tattoo is cheap, easy to apply and it fades in few days. It can be designed in different forms to the different tastes as well as the individual preferences in different places. Additionally, we tend to like changes across the time.

Henna, also known as Mehndi in Hindi, and Chinah in Hebrew, is a natural dye prepared from the plant Lawsonia inermis, also known as hina, the henna tree, the mignonette tree, and the Egyptian privet, the sole species of the genus Lawsonia.

To conclude, it is wise to think carefully before having such colourful patterns on the skin; in different parts of the body. It would make sense, to consider a job in the future, as many official jobs won't accept a person with a tattoo until it has been removed or made invisible.

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