



Original Article

Cardiovascular Lifestyle Recommendations Given by Health Care Providers: A Cross-Sectional Survey of 101 Women in Douala, Cameroon

Recommandations des Professionnels de Santé sur la Prévention des Maladies Cardiovasculaires : Une Enquête Transversale Auprès de 101 Femmes à Douala, Cameroun

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ABSTRACT

Introduction. Cardiovascular diseases emerged as the leading cause of mortality among women. About one patient out of two do not receive any healthy lifestyle recommendations during medical appointment. We aimed to investigate lifestyle knowledge patterns among women, with a specific focus on cardiovascular risk factors. **Methodology.** This was a cross-sectional survey conducted in Douala, Cameroon in March 2022 during a one-day parade. We included all consenting adult females who had seen a health care personnel in the previous 5 years. Data collected include participants characteristics and whether selected lifestyle recommendations were offered to them during their last healthcare visit. **Results.** Overall, 101 women were included with a mean age of 48.71 ± 11.1 years. Among the participants, 16,83% (17/101) were known hypertensive, with half of them self-reported compliance with their treatment. About 40.59% of participants reported never receiving any of the 7 recommendations of interest from a healthcare personnel. The most common lifestyle recommendation offered to our participants was to eat at least five servings of fruits and/or vegetables ($n=51$) while the least common advice was to stop or don't start using tobacco ($n=9$). **Conclusion.** Healthcare personnel advice on cardiovascular factors is insufficient, with four out of ten women reporting never receiving any recommendations. Healthcare personnel should incorporate lifestyle education of women in their current practice as this would promote control of cardiovascular diseases in this population.

RÉSUMÉ

Introduction. Les maladies cardiovasculaires sont devenues la première cause de mortalité chez les femmes. Environ une patiente sur deux ne reçoit aucune recommandation de mode de vie sain lors des rendez-vous médicaux. Notre objectif était d'étudier les modèles de connaissances sur le mode de vie chez les femmes, en mettant l'accent sur les facteurs de risque cardiovasculaires. **Méthodologie.** Il s'agissait d'une étude transversale descriptive menée à Douala, Cameroun, en mars 2022 lors d'une journée de fête. Nous avons inclus toutes les femmes adultes consentantes ayant consulté un personnel de santé au cours des 5 dernières années. Les données recueillies comprenaient les caractéristiques des participantes et si des recommandations de mode de vie sélectionnées leur avaient été proposées lors de leur dernière visite de soins de santé ou non. **Résultats.** Au total, 101 femmes ont été incluses avec un âge moyen de $48,71 \pm 11,1$ ans. Parmi les participantes, 16,83 % (17/101) étaient des hypertendues connues, avec la moitié d'entre elles se déclarant observantes à leur traitement. Environ 40,59 % des participantes ont déclaré n'avoir jamais reçu aucune des 7 recommandations d'intérêt de la part d'un personnel de santé. La recommandation de mode de vie la plus couramment offerte à nos participantes était de consommer au moins cinq portions de fruits et/ou légumes ($n = 51$) tandis que le conseil le moins courant était d'arrêter ou de ne pas commencer à utiliser du tabac ($n = 9$). **Conclusion.** Les conseils du personnel de santé sur les facteurs cardiovasculaires sont insuffisants, avec quatre femmes sur dix déclarant n'avoir jamais reçu de recommandations. Le personnel de santé devrait intégrer l'éducation au mode de vie des femmes dans leur pratique actuelle, car cela favoriserait le contrôle des maladies cardiovasculaires dans cette population.

HIGHLIGHTS OF THE STUDY

What is already known on this topic

Cardiovascular diseases emerged as the leading cause of mortality among women. However, about one patient out of two do not receive any healthy lifestyle recommendations during medical appointment.

What question this study addressed

Lifestyle knowledge patterns among women, with a specific focus on cardiovascular risk factors

What this study adds to our knowledge

1. Among the participants, 16,83% were known hypertensive, with half of them self-reported compliance with their treatment.
2. About 40.59% of participants reported never receiving any of the 7 recommendations of interest from a healthcare personnel.
3. The most common lifestyle recommendation offered was to eat at least five servings of fruits and/or vegetables while the least common advice was to stop or don't start using tobacco.

How this is relevant to practice, policy or further research.

Healthcare personnel should incorporate lifestyle education of women in their current practice

INTRODUCTION

Cardiovascular diseases, once predominantly associated with men, have emerged as the leading cause of morbidity and mortality among women worldwide, surpassing even cancer [1,2]. In 2017, a study conducted in Buea reported that 60.9% of patients admitted for cardiovascular disease were female [3]. Women face not only traditional cardiovascular risk factors but also unique factors such as menopause, hypertension and diabetes during pregnancy, and depression [4]. Additionally, anatomical, hormonal, adaptive, and cardiovascular functional differences between sexes contribute to distinct risk profiles [3].

In today's fast-paced world, the lack of time for comprehensive physician counselling poses a significant barrier to effectively addressing cardiovascular risks among women [5–7]. A study conducted in the UK in 2021 revealed that a substantial number of doctors (60%) fail to evaluate lifestyle features during patient examinations, with only 56% providing healthy lifestyle recommendations to patients without lifestyle related diseases and 73% providing recommendations to those with chronic lifestyle-related diseases[8]. Another study conducted in Douala, Cameroon demonstrated that attitudes and practices to prevent cardiovascular risk factors were generally insufficient [9]. Healthcare providers often struggle to provide in-depth guidance on disease prevention and lifestyle modifications due to brevity of appointment [7]. Consequently, patients may not receive the necessary information and support to make informed decisions about their cardiovascular health, allowing the persistence of high-risk lifestyles—such as suboptimal dietary choices, sedentary behavior, and tobacco or alcohol use—to potentially impede the efficacy of medications.

The primary aim of this study was to comprehensively investigate lifestyle knowledge patterns among women,

with a specific focus on cardiovascular risk factors. This study seeks to reveal the extent of women's understanding of cardiovascular risk factors. The findings will provide valuable insights into the potential impact of physician counseling and highlight the necessity for more comprehensive healthcare strategies that address persistent exposure to high-risk lifestyles. Ultimately, our goal is to develop targeted interventions and policies that optimize healthcare delivery, empower women to enact positive lifestyle changes, and effectively enhance treatment outcomes for cardiovascular diseases.

MATERIALS AND METHODS

Study Design, period and setting

This study presents the findings of a cross-sectional survey conducted in Douala, Cameroon, during the International Women's Day celebration on the 8th of March 2022. Annually, the government arranges a one-day parade, attracting women from diverse sectors of life, who gather to commemorate and honour the significant role of women in society.

Population selection

Sampling was consecutive and non-probabilistic. All adult females aged 18 years and above who had seen a healthcare personnel in the previous 5 years, met on the parade ground and who provided verbal consent to the study were included.

Outcome of interest

The main outcome of interest was sufficient lifestyle counselling, define as the number of participants who received at least 4/7 of the selected lifestyle recommendations from any healthcare personnel. Based in local practice and published data [10], the selected lifestyle recommendations of interest were as follows: Reduce your consumption of sugary drinks, Maintain a healthy weight or lose weight, Start or do more physical activity, Reduce your alcohol consumption, Eat at least 5 servings of fruits and/or vegetables per day, Reduce your consumption of salt, Stop or don't start using tobacco.

Sample size calculation

We found no previous study which has evaluated lifestyle recommendations either in a healthcare setting or a general population survey in Cameroon. Therefore, for the sample size calculation of this cross-sectional study, we considered a proportion of 50% for the event of interest, with alpha of 5% and a margin of error of 10%. The minimum sample size was estimated at 96 participants [11].

Data collection tools and procedures

After obtaining administrative authorization, from the regional delegation of public health, we proceeded to the parade ground. The research team was part of the healthcare staff for the day. We waited for potential participants at the various healthcare stands and wore t-shirts denoting our affiliation to the healthcare staff. Women were approached before the start of the parade and information about the survey was provided to them. Women who met inclusion criteria and provided verbal consent to the study were enrolled. A quiet place within

the healthcare stands was reserved to conduct the interview using a pretested questionnaire. The questionnaire collected data on sociodemographic characteristics like age and marital status, as well as clinical data on hypertension and diabetes status. The questionnaire also collected data on the last healthcare visit and whether selected lifestyle recommendations were offered to them. After administration of the questionnaire, the participants' weight and height were measured and Body Mass Index (BMI) was calculated. Because of the nature of the settings, researchers opted not to measure blood pressure readings. Nonetheless, all participants were advised to get a check-up at the primary care facility and guidance was provided on a case-by-case basis. All participants received lifestyle advice from one of the doctors on site.

Statistical analysis

Data were entered using the SPSS version 20 software. Quantitative variables were presented as mean and standard deviations as there were normally distributed, while qualitative variables were presented as frequencies (counts) and percentages. No inferential or analytical statistical analysis was conducted.

Ethical considerations

Our study was carried out in strict compliance with the fundamental principles of medical research [12]. Verbal consent was obtained. This study was carried out as part of the healthcare educational activities coordinated under the guidance of the Ministry of Public Health, which is the ultimate guarantor of human safety in Cameroon. Moreover, this study did not involve any invasive procedures or had the potential to cause physical or psychological harm to the patient. For these reasons ethical clearance was not requested for this study.

RESULTS

Participant's characteristics

A total of 101 women were included in the study. The mean age of the participants was 48.71 years (± 11.1), ranging from 25 to 80 years. Detailed sociodemographic characteristics can be found in Table I.

Table I Sociodemographic characteristics based on degree of lifestyle counselling received.

Sociodemographic variables	Sufficient lifestyle counselling (n = 32)	Insufficient lifestyle counselling (n = 69)	Total
Age, Mean \pm SD	51.09 \pm 12.93	47.61 \pm 10.04	48.71 \pm 11.1
Marital status, n (%)			
Single	16.0 (50.0)	31 (44.93)	54 (53.47)
Married/cohabitating	16 (50.0)	38 (55.07)	47 (46.53)
Educational level, n (%)			
No formal education	0 (0)	1 (4.45)	1 (0.99)
Primary	2 (6.24)	17 (24.64)	19 (18.81)
Secondary	17 (53.13)	36 (52.17)	53 (52.48)
Tertiary	13 (40.63)	15 (21.74)	28 (27.72)

*SD=Standard Deviation

Clinical and comorbidity characteristics

About 40.56% of the participants were classified as obese, with 26.73% classified as grade 1 obesity, 11.88% as

grade 2 obesity, and 4.95% as morbidly obese. Among the participants, 16.83% (17 women) had a known history of hypertension, and only 50% of them self-reported compliance with their prescribed treatment as shown in Table II.

Table II Comorbidities and clinical variables based on extent of lifestyle recommendations.

Comorbidities and clinical variables	Sufficient lifestyle counselling (n=32). n (%)	Insufficient lifestyle counselling (n=69). n (%)	Total. n (%)
Physician seen in previous 12 months	25 (78.13)	40 (57.97)	65(64.36)
Blood pressure measured in last 12 months	10 (31.25)	27 (39.13)	37(36.63)
Known hypertension	5 (15.63)	12 (17.39)	17(16.83)
Self-reported compliance to medications	5 (100.0)	3 (27.27)	8 (50.00)
Currently receiving medications	5 (15.63)	12 (17.39)	17(16.83)
Cardiac failure	-	1 (100)	1 (0.99)
Family history of stroke < 45 years	1 (3.13)	6 (8.7)	7 (6.93)
Family history of coronary heart disease < 45 years	1 (3.13)	2 (2.9)	3 (2.97)
Menopause	19 (59.38)	33 (47.83)	52(51.49)
Hormonal contraception use	2 (15.3)	3 (8.33)	5 (10.20)
Current or previous smoking	6 (8.70)	5 (15.63)	11(10.89)
Sedentary lifestyle	7 (21.88)	25 (36.23)	32(31.68)
Dyslipidaemia	5 (15.63)	3 (4.35)	8 (7.92)
Overweight and obesity	17 (53.13)	28 (40.58)	45(44.55)

*Sufficient lifestyle recommendation relates to receiving recommendation least 4/7 lifestyle recommendations

Most of the participants had received at least primary education, with more than half having completed at least secondary school level. Among the participants, 49 women were using hormonal contraception, while 52 were menopausal. Active smoking was reported by 5.94% (n=6), while a history of past smoking was found in 4.95% (n=5). A sedentary lifestyle was reported by 32 participants. Only one participant reported a history of chronic heart failure, and 8 participants had dyslipidaemia as indicated in Table II.

Lifestyle recommendations based on selected comorbidities.

Regarding lifestyle factors, 36 participants had not visited a physician in the previous 12 months. About 40.59% of participants reported never receiving any of the 7 recommendations of interest from a healthcare personnel. Among those who had seen a physician, 91.09% had not received any advice regarding smoking cessation. The most common lifestyle recommendation offered to our participants was to eat at least five servings of fruits and/or vegetables (n=51), followed by advice to start or do more physical activity (n=41), reduce alcohol consumption (n=33), reduce salt consumption (n=33), reduce

consumption of sugary drinks (n=32), maintain healthy weight, or lose weight (n=30). The least common advice was to stop or don't start using tobacco (n=9).

Based on selected comorbidities, the least lifestyle recommendation received by patients with current/previous tobacco use was on smoking cessation (18.18%). The most given recommendation for participants who visited a physician in the previous 12 months was to eat at least 5 servings of fruits/vegetables per day (63.08%). For patients with known hypertension, the most common advice given was to reduce salt consumption (64.71%). All patients with dyslipidaemia received advice on reduction of alcohol consumption. In patients with sedentary lifestyle, advice to eat at least 5 servings of fruits/vegetables per day was offered to 56.25% while advice to start or do physical activity was offered to 37.50% of participants, a similar pattern for participants who were overweight or obese (53.33% vs 47.67% respectively) as shown in Figure 1.

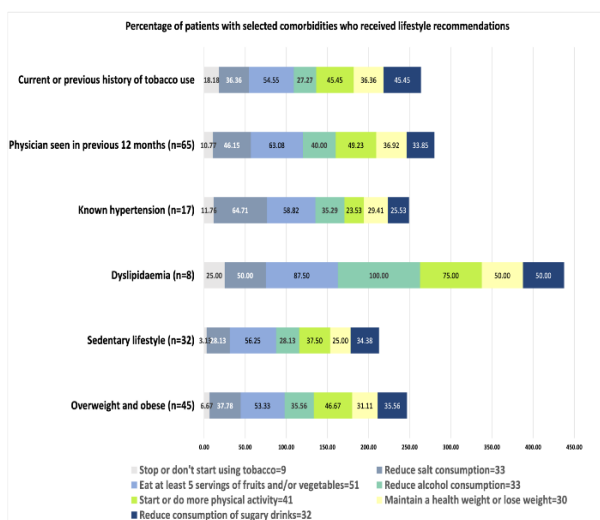


Figure 1. Percentage of patients with selected comorbidities who received lifestyle recommendations.

DISCUSSION

The aim of this study was to unveil the depth of women's understanding regarding cardiovascular risk factors and provide valuable insights into the potential impact of physician counselling and underscore the necessity for more comprehensive healthcare strategies that address the enduring exposure to high-risk lifestyles.

The mean age in our sample was 48.71 years (± 11.1 SD), a value in the range representing only 7.39% of Cameroonians [13]. This age was however lower than that reported in a similar study in Europe (67 ± 9 SD) [14]. These may constitute a barrier to the generalisation of our study results.

In Sub-Saharan Africa, the female life expectancy increased from 54 years in 2000 to 65 years in 2020 [15]. Both adherence to lifestyle recommendations and life expectancy have been reported to be influenced by education [15,16]. Almost all women (99%) in our study received education and this may relate to both national

literacy levels in Cameroon (78.23%) and the urban setting in which the study was conducted [17].

About 40.56% of our participants were obese, a proportion twice higher than that reported in rural areas of Cameroon (19.2%) in the Global Nutrition report in 2022 [19]. This may relate to western lifestyle and diet in urban settings that increase obesity risk [20]

Only six women (5.94%) reported current tobacco use in our study, as similarly reported in the 2013 Cameroonian Global Adult Tobacco Survey on people above 15 years of age, where 4.3% of women used tobacco products [21]. Nonetheless, this prevalence is almost three times less than that reported amongst women in United States (13.5%) [22]. This may relate to cultural norms in Cameroon, where a woman smoking constitutes a taboo. Lifestyle recommendations received by our participants were insufficient (68.3%). This may relate to the burden of communicable diseases like HIV, Hepatitis B and C, malaria in our setting that take pre-eminence over communicable diseases like cardiovascular diseases in the planning of educational interventions. However, this result probably reflects the astonishing low Cameroonian nurse-to-patient and doctor-to-patient ratio of 1:4260 and 1:15939 respectively [23].

The advice least received by participants was on smoking cessation. More alarming, only 18.18% of current/previous tobacco users received lifestyle recommendations on smoking cessation as similarly reported by Tiffe et al. in 2019 [14]. Short visit time, non-smoking related diseases, non-availability of self-help manuals or tobacco cessation treatments have all been reported as barriers to physician advice on smoking cessation [24].

The 2015-2020 U.S. Dietary Guidelines recommends that fruits and vegetables constitute one-half of the plate at each meal [25]. Eating at least 5 servings of fruits/vegetables was the most reported advice received by participants (50.49%). In both participants reporting a sedentary lifestyle and overweight/obesity, advice to eat fruits and vegetables surpassed advice to start or do more physical activity. This practice is in accordance with the WHO Best Buys Guide which recommends that health systems prioritize implementation of nutrition education and counselling to increase fruit and vegetable intake and physical activity [26].

About 32.6% of the overall sample and 64.71% of participants with known hypertension received advice on reducing salt consumption. Similarly, a US study reported that 24% of U.S. adults received doctor or other health professional advice to cut down on dietary sodium [27]. This is a common advice given probably because literature has shown without equivoque that adhering to this advice not only decreases BP levels and hypertension incidence, but it also reduces cardiovascular morbidity and mortality [28].

In Europe, lifestyle recommendations were reported to be insufficient in 49.9% of study participants [14]. However, in our study, a more alarming value of 68.3% was reported, with four out of ten participants (40.59%) reporting never receiving any recommendations from a healthcare personnel. These findings prompt further

explorations to affirm or infirm these results, as well as to plan better public health educational interventions.

This study had some limitations. Firstly, participants were recruited from a parade, and blood pressure measurements and biological parameters to confirm diagnosis of dyslipidaemia for example were not carried out. Apart from anthropometric measurements, data was exclusively based on self-reported parameters and therefore, this constitutes a threat to the accuracy of our findings. Moreover, our sampling method was not probabilistic, indicating a high risk of sampling bias.

Nonetheless, our strengths lie in the fact that this is the first community-based survey, with a heterogeneous sample that assessed the extent of cardiovascular risk factor education amongst Cameroonian women. Our results can therefore serve as a baseline for more robust studies on this pertinent issue.

CONCLUSION

This study showed that healthcare personnel advice on cardiovascular lifestyle factors was insufficient in 68.3% of women, with four out of ten women (40.59%) reporting never receiving any recommendations from a healthcare personnel. Healthcare personnel should incorporate lifestyle education of women in their current practice as this would improve awareness, treatment adherence and ultimately promote control of cardiovascular diseases amongst women.

DECLARATIONS

Availability of data and materials

The data that support the findings of this study are available from the corresponding author, MMLE, upon reasonable request.

Authors' contributions

Study concept and design: SD, and MMLE. Data collection: SD. Analysis and interpretation of data: MMLE. Drafting of the manuscript: SD and MMLE. Critical revision of the manuscript: SD, MMLE, NMS, NV, NC, MS, NC, KF and AD. KF and AD supervised the study. SD and MMLE had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. All authors agreed to submit the manuscript in its current form.

Ethical considerations: Our study was carried out in strict compliance with the fundamental principles of medical research. Verbal consent was obtained. This study was carried out as part of the healthcare educational activities coordinated under the guidance of the Ministry of Public Health, which is the ultimate guarantor of human safety in Cameroon.

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