Gynecology & Obstetrics
ISSN: 2161-0932
OPEN ACCESS Freely available online
Research Article

Reported and Measured Physical Activity Level of Women Living with Polycystic Ovary Syndrome in Yaoundé, Cameroon

Serge Foubi Guifo[1] , Marcel Azabdji-Kenfack[2] , Aurel T. Tankeu[3] , Junie Metogo[1] , Guy Wafeu[2] , Francky Teddy Endomba [4] , Floriane Djapa Tofeun[2] , Audrey Momo Synthia[2] , Julius Dohbit Sama[1] , Siméon Pierre Choukem [5,6,7*]

[1]Department of Obstetrics and Gynecology, Faculty of Medicine and Biomedical Sciences, University of Yaoundé; [2]Department of Biochemistry and Physiological Sciences, Faculty of Medicine and Biomedical Sciences, University of Yaoundé 1, Yaoundé, Cameroon; [3]Department of Biomedical Sciences, Faculty of Biology and Medicine, University of Lausanne, Switzerland; [4]Psychiatric Internship Program, University of Bourgogne, 21000 Dijon, France; [5]Faculty of Health Sciences, University of Buéa, Cameroon; [6]Department of Internal Medicine, Douala General Hospital, Douala, Cameroon; [7]Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Cameroon

ABSTRACT

Objectives: The aim of this study was to determine the level of physical activity of women living with PCOS in Yaoundé, Cameroon, both reported and measured.

Methods: We conducted a cross-sectional study assessment with 46 women with PCOS. Socio-demographic, clinical, anthropometric and lifestyle data through physical activity were collected. In addition, the level of physical activity was measured using an AKASO® H band 3 pedometers and a self-administered standardized questionnaire (IPAQ).

Results: Based on the IPAQ, 97.9% of women were active and the time spent sitting was 7 hours per week or 1 hour per day. After objective assessment of the pedometer analysis in accordance with ACSM recommendations, 13% of women were inactive. During a lifestyle assessment towards the practice of physical activity, 78.4% had a poor knowledge and 56.5% of women did not have the right attitudes. We found no statistically significant association between the different variables studied and insufficient physical activity.

Conclusion: Majority of women with PCOS are active despite the poor knowledge on the practice of physical activity.

Keywords: PCOS (Polycystic Ovary Syndrome), Physical Activity, IPAQ (International Physical Activity Questionnaire)

INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is a common reproductive and endocrine disorder affecting 6-10% of women of childbearing age worldwide [1]. Its prevalence in Sub-saharan Africa varies between 12.5% to 23.6% [2–4]. This syndrome represents the most common endocrinopathy in women in this age group and is associated with a high prevalence of infertility, reaching 73% [5]. It is a highly heterogeneous condition as highlighted by the diagnostic criteria which is associated with an important morbidity [6]. Women living with PCOS, are at higher risk of overweight or obesity, high blood pressure, chronic inflammation, dyslipidemia, insulin resistance and hyperinsulinemia [7, 8]. In addition, PCOS is associated with an impaired cardiopulmonary function and psychological distress namely anxiety and depression which alter individual's quality of life [7]. As a result of this pathology, PCOS women are at high risk for type 2 diabetes and metabolic syndrome, coronary heart disease, mental health disorders and endometrial cancer [7, 8]. Despite the important morbidity associated with this condition, non-pharmacological measures represent the first pillar

Correspondence to: Siméon Pierre Choukem, MD, PU-PH, Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Cameroon; Email: schoukem@gmail.com

Received: 25 July, 2023, Manuscript No. gocr-23-25812; **Editor assigned:** 30 July, 2023, PreQC No. gocr-23-25812 (PQ); **Reviewed:** 13 August, 2023, QC No. gocr-23-25812 (Q); **Revised:** 22 August, 2023, Manuscript No. gocr-23-25812 (R); **Accepted Date:** 28 August, 2023; **Published:** 15 September, 2023

Citation: Choukem S.P, Metogo J, Guifo S.F., et al. (2023) Reported and measured physical activity level of women living with polycystic ovary syndrome in Yaoundé, Cameroon, Gynecol. Obstet. 13:1.10.35248/2161-0932.23.13.603

of management [9]. Regular and adapted physical activity is one of the most frequently prescribed intervention in this population. Regular and structured physical activity increases the content, function and oxidative capacity of the mitochondria, leading to an increase in cardiopulmonary function and an improvement in insulin sensitivity [10]. In addition, exercise modulates androgen secretion, improves the lipid profile, mental health and quality of life of patients with PCOS [11, 12]. Exercise also improves fertility in women with PCOS supporting its importance in the primary management of this condition [13]. Similar to pharmacological management, quality and quantity of physical activity is extremely important to achieve the effected benefits [14]. In this regard, determining the initial profile and determinants of level of physical activity are essential in order to adjust the prescription of exercise. However, data on physical activity level and its determinants for women with PCOS in sub Saharan Africa are rare. In order to fill this knowledge gap, we aimed to study the level of physical activity of women living with PCOS in Cameroon.

MATERIAL AND METHODS

This was descriptive study, cross-sectional approach was used at Shalamar Hospital Lahore. The duration of the study was 3 months. All pregnant women were visit Shalamar Hospital Lahore.

Ethical considerations

This study was approved by the regional ethic committee of the Centre region of Cameroon Identifier (N°: 0598/CRERSHC/2020:). All participants provided written informed consent. The study was conducted in strict respect of all principles of biomedical research as stated in the Helsinki Declaration.

Participants and study design

This was a cross-sectional study conducted from November 2019 to May 2020 including women with polycystic ovary syndrome living in Yaoundé. Participants were women of childbearing age received at outpatient consultation at the Gyneco-Obstetric and Pediatric Hospital of Yaoundé or from the community presenting with PCOS. We excluded pregnant women, those with additional comorbidities that could significantly alter their physical activity and any woman with motor function impairment. Sampling was consecutive and exhaustive. The diagnosis of PCOS was made according to the 2003 Rotterdam criteria after excluding other causes of these conditions [6].

Data collection

Data were collected using a designed and pre-tested questionnaire that included sociodemographic and clinical characteristics of the participants, clinical data at the time of diagnosis of PCOS. In addition, we assessed the knowledge, attitudes and practices of participants in relation to physical activity. Knowledge was evaluated on the definition of physical activity, on activity recommendations and its benefits on PCOS. Attitudes was define as any dispositions to do or not to do physical activity. Practice was assessed by the standardized International Physical Activity Questionnaire (IPAQ).

We measured weight and height according to the method as described by Nganou et al. in 2018 [15]. We calculated the Body Mass Index (BMI) using the formula BMI=weight/(height)^2 and classified participants according to the World Health Organization grades. Abdominal obesity (abdominal circumference > 88 cm) was defined by the Rotterdam Consensus of 2003, according to the criteria for metabolic syndrome in women with PCOS [6].

After data collection and clinical evaluation, a connected wrist pedometer (AKASO®) was used to estimate the level of physical activity. It was set up on each participant's wrist. During the installation no information that could be a source of bias was mentioned. Each participant was asked not to remove the device under any circumstances, to continue to go about each of their daily activities and in case of problems they would have to inform us.

Physical activity measurement

Data from the pedometer were extracted and analyzed with a specialized software (H band 3) in order to obtain the number of steps and distance in kilometers. Any patient with a number of steps ≥ 5400 per day was considered active according to the ACSM with a maximum of 10000 steps per day.

Categorization of physical activity

Reported physical activity level was assessed using the IPAQ (International Physical Activity Questionnaire). A short version of the questionnaire, consisting of seven questions on vigorous, moderate physical activity behavior and walking time during the previous week. To reduce over-reporting, participants were asked to recall the duration, intensity and frequency of their physical activity in the past week. According to the IPAQ scoring modalities, each participant's physical activity level was calculated and reported in Metabolic Equivalents Task (METs) minutes per week. One MET is equivalent to the amount of energy spent per minute for a person at rest. IPAQ estimates 8 METs for high intensity activity, 4 METs for moderate intensity and 3.3 METs for low intensity activity or walking. Reported physical activity level was calculated as follows: activity level in METs × days per week × minutes of activity per day. Total physical activity in METs minutes/week = METs min/week for high-intensity activity + METs min/week for moderate activity + METs min/week for walking [16]. Participants were grouped into active (if MET minutes per week was greater than 600 METs) and inactive (METs minutes per week= less than 600 METs) according to the World Health Organization and the ACSM (American Collage of Sport Medicine) guidelines of exercise testing [17, 18].

The level of knowledge and attitudes had six and five questions, respectively. After rating the various questions, we had [18]: less than 25% of good answers=bad knowledge, less than 50% of correct answers=insufficient knowledge, less than 70% of correct answers=average knowledge, more than 70% of correct answers= good knowledge; less than 25% of good answers= harmful attitude, less than 50% of correct answers=erroneous attitude, less than 70% of correct answers=rough attitude and more than 70% of correct answers=fair attitude.

Statistical analysis

Data were collected and analyzed using IBM SPSS Statistics for Windows, version 27.0. (Ar-monk, NY: IBM Corp). Quantitative data are presented as mean ± SD when normally distributed and median [Interquartile range] when normality was not verified while categorical variables are presented as percentages.

RESULTS

Characteristics of the study population

Overall, we included 46 women with PCOS in the study. Characteristics of the study population are presented in Table 1.

The mean age was 27.1 ± 4.9 years with a minimum of 20 and a maximum of 45 years. Regarding the clinical features of participants, 76.1% of women had an irregular menstrual cycle, 73.9% were nulliparous and 60.9% had a history of infertility. Seventy-six percent (66%) of women were overweight or obese (BMI ≥ 25 kg/m 2) and 56.5% had abdominal obesity. On physical examination, 71.7% of women had hirsutism.

Table 1. Characteristics of the study population (N=46).

Variables	Mean ± SD or n (%)	Minimum-Maximum
Systolic blood pressure (mmHg)	118 ± 12	99-160
Diastolic blood pressure (mmHg)	77 ± 11	57-120
Body mass index (kg/m^2)	29.03 ± 6.62	15.62-51.42
Waist circumference (cm)	91.05 ± 18.82	58.0-137.0
Hip circumference (cm)	98.60 ± 14.32	71.0-127.0
Waist to hip ratio	0.92 ± 0.12	0.66-1.18
Irregular menstrual cycle	35 (76,1)	---
Nulliparous	34 (73,9)	---
History of infertility	28 (60,9)	---
Hirsutism	33 (71,7)	---
Acnea	7 (15,2)	---

SD: Standard Deviation

Table 2. Lifestyle on the physical activity

Variables (N=46)	Polycystic Ovary Syndrome
	n (%)
Knowledge Assessment	
Wrong	3 (6,5)
Insufficient	18 (39,1)
Medium	15 (32,6)
Good	10 (21,7)
Evaluation of attitudes	
Harmful Attitudes	2 (4,3)
Wrong Attitudes	16 (34,8)
Approximate Attitudes	8 (17,4)
Right Attitudes	20 (43,5)

Lifestyle on the physical activity practice

The overall knowledge assessment showed that 21.7% women had a good knowledge regarding the definition of physical activity, the activity recommendations and its benefits on PCOS. The global attitude assessment showed that 43.5% women had a good attitude towards physical activity and 97.9% were active (Table 2).

Reported and measured physical activity level

The mean reported physical activity level was 4625.95 ± 75163.00 MET-min per week, with 60.9% of women moderately active. The mean time spent sitting was 19.13± 24.09 hours per week (Table 3). The average number of steps per day and distance covered were respectively 9.130 ± 3.800 steps and 7.47 ± 3.04 km. According to the recommendations of the American Collage of Sport Medicine (ACSM), 87% of the population was active and 13% inactive (Table 3).

No demographic or clinical variables were associated with inadequate physical activity.

DISCUSSION

Physical activity is a first-line means of management of the PCOS. The prescription of an adapted and regular physical activity is important to obtain beneficial effects. As such, determining the baseline level and determinants of physical activity are essential in order to adjust the prescription. The main objective of our study was to determine the physical activity level of women with PCOS in our context. We found that 97.9% of women reported being active during the seven days preceding the administration of the IPAQ. After objective evaluation of the pedometer analysis according to ACSM recommendations, 87% of women were active and 13% were inactive.

The high level of physical activity obtained when using a self-reported questionnaire suggests an overestimation of physical activity by the large majority of participants. In addition, they reported an average of 7 hours per week or 1 hour per day spent sitting which reflect their physical activity report. However, after an objective evaluation of physical activity, 13% of participants were found inactive.

The level of physical activity of the population obtained with the pedometer (87%) is significantly lower than that obtained with the IPAQ (97.9%). The difference observed could be due to over reporting. In fact, studies show that most of self-reported physical activity is usually overestimated. This is supported by findings of Mohamad et al. in 2018. This study found that overweight or obese women were more active when assessed by self-reported

Table 3. Level of physical activity using the IPAQ questionnaire and the pedometer (N=46)

Variables	Mean ± SD	Minimum – Maximum
Level of physical activity using the IPAQ		
Level of physical activity (MET-min/week)*	4625.95 ± 7516.00	0-36228
Time spent sitting per week (hours)	19.13 ± 24.09	0-84
Level of physical activity using the pedometer		
Level of physical activity (number of steps per day)	9130 ± 3800	1602-17845
Distance covered (km)	7.47 ± 3.04	1.20-14.86

*MET-min/week: Metabolic equivalent task minute per week, SD: Standard Deviation

measurement, but insufficiently active when assessed by direct measurement [19].

Despite the fact that 97.9% of women participated in physical activity after evaluation by IPAQ, 78.4% of women had a non-optimal level of knowledge and 56.5% of women did not have the right attitudes towards physical activity. This result call for reinforcement of therapeutic education in this population especially when we consider that physical activity is a first-line means of management of their condition

CONCLUSION

Women with PCOS are mostly active despite a poor knowledge regarding physical activity. Different parameters studied were not associated with insufficient physical activity practice.

References

1. Bozdag, G., et al. "The prevalence and phenotypic features of polycystic ovary syndrome: a systematic review and meta-analysis." *Hum. Reprod.* 31.12 (2016): 2841–2855.
2. Omokanye, L., et al. "Polycystic ovarian syndrome: Analysis of management outcomes among infertile women at a public health institution in Nigeria." *Niger. J. Gen. Pract.* 13.1 (2015): 44.
3. Kalenda, L. M. N., et al. "Étude des aspects cliniques, échographiques et nutritionnels du syndrome des ovaires micropolykystiques (SOMPK) à Mbuji-Mayi, RD du Congo." *Pan Afr. Med. J.* 19.1 (2014).
4. Eugene, B. P., et al. "L'infertilité féminine à l'Hôpital Général de Douala: aspects épidémiologiques et radiologiques (à propos de 658 cas)." *J. Afr. Imag. Méd.* 2.7 (2015): 16–23.
5. Hull, M. G. R. "Epidemiology of infertility and polycystic ovarian disease: Endocrinological and demographic studies." *Gynecol. Endocrinol.* 1.3 (1987): 235–245.
6. Fauser, B. C. J. M., et al. "Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome." *Hum. Reprod.* 19.1 (2004): 41–47.
7. Neven, A. C. H., et al. "A summary on polycystic ovary syndrome: Diagnostic criteria, prevalence, clinical manifestations, and management according to the latest international guidelines." *Semin. Reprod. Med.* 36 (2018): 5–12.
8. Goodman, N. F., et al. "American association of clinical endocrinologists, American college of endocrinology, and androgen excess and pcos society disease state clinical review: Guide to the best practices in the evaluation and treatment of polycystic ovary syndrome - Part 2." *Endocr. Pract.* 21.12 (2015): 1415–1426.
9. Teede, H., et al. "Recommendations from the international evidence-based guideline for the assessment and management of polycystic ovary syndrome." *Fertil. Steril.* 2.2 (2018): 1–16.
10. Dubé, J. J., et al. "Exercise Dose and Insulin Sensitivity: Relevance for Diabetes Prevention." *Med. Sci. Sport Exerc.* 44.5 (2012): 793–799.
11. Gordon, B., et al. "The effects of exercise training on the traditional lipid profile and beyond." *Curr. Sports Med. Rep.* 13.3 (2014): 253–259.
12. Ten Have, M., et al. "Physical exercise in adults and mental health status. Findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS)." *J. Psychosom. Res.* 71.6 (2011): 342–348.
13. Shetty, D., et al. "Exercise in polycystic ovarian syndrome: An evidence-based review." *Saudi J. Sport Med.* 17 (2017): 123.
14. Vina, J., et al. "Exercise acts as a drug; the pharmacological benefits of exercise." *Br. J. Pharmacol.* 167 (2012): 1–12.
15. Nganou-gnindjio, C. N., et al. "Effect of Therapeutic Group Education on Adherence and Blood Pressure Control among Uncontrolled Hypertensive Patients in Sub Saharan Africa." 8.3 (2018): January.
16. Ipaq group. "Guidelines for Data Processing and Analysis of the International Physical Activity Questionnaire (IPAQ) – Short and Long Forms." (2005): November:1–15.
17. Simpson, W., Potteiger, J., & Feltman, K. *ACSM's Guidelines for Exercise Testing and Prescription.* 10th ed. Philadelphia; 2018.
18. Essi, M. J., & Njoya, O. "Point de vue L'Enquête CAP (Connaissances, Attitudes, Pratiques) en Recherche Médicale." *Health Sci. Dis.* 14 (2013): 1–3.
19. Ahmad, M. H., et al. "Comparison between self-reported physical activity (IPAQ-SF) and pedometer among overweight and obese women in the MyBFF @ home study." *BMC Women's Health* 18 (Suppl 1) (2018): 86–98.