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ORIGINAL ARTICLE

Can a mother drink coffee while breastfeeding? Awareness of the diet of breastfeeding mothers. Survey and review of the latest recommendations

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ABSTRACT

Introduction: Breastfeeding women often face the dilemma of whether they can drink coffee and, if so, in what quantity. The European Food Safety Authority recommends a daily intake of 200 mg of caffeine for lactating women. It is assumed that 1 cup of black coffee provides from 70 to 140 mg of caffeine.

Aim: The article outlines surveyed women's understanding of coffee consumption safety during breastfeeding and current recommendations.

Material and methods: The study used an original questionnaire. 630 women aged 18–44 took part in the survey. The level of knowledge regarding the diet of a breastfeeding mother was examined, with particular emphasis on the aspect of coffee.

Results and discussion: Most of the surveyed women — 408 (64.8%) answered that drinking coffee is allowed while breastfeeding. However, only over ⅓ of respondents (34.9%) indicate that there is a limit to the amount of coffee consumed during lactation and it

should not be more than 1–2 cups a day. The study showed no relationship between women's knowledge and the use of advice from a certified lactation consultant (p = 0.472).
Conclusions: Most surveyed women correctly indicate coffee as a drink allowed during lactation. However, they are not aware of the limitations associated with it. The lack of this knowledge may be because mostly they hear about the diet of breastfeeding mothers from their families rather than from medical professionals. Using advice from a certified lactation consultant among respondents was not associated with having more detailed knowledge about drinking coffee during lactation.
Keywords: breastfeeding, coffee, caffeine, lactation, breastfeeding diet

Introduction

Coffee is currently one of the most popular drinks in the world. Coffee beans arrived in Poland mainly from Turkey, in the second half of the 17th century, mainly through trade, diplomatic and military contacts [1]. Poles really liked the drink. It is appreciated not only for its unique taste but also for its stimulating effect. It is assumed that 1 cup of black coffee can provide from 70 to 140 mg of caffeine [2]. However, caffeine is not the only bioactive ingredient in coffee (Fig. 1).

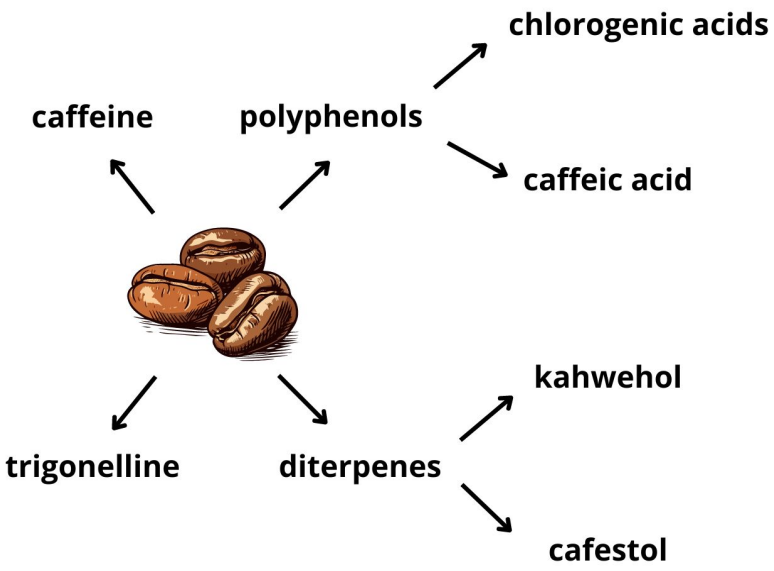

Figure 1. Ingredients of a coffee drink. Based on [3]

The results of many studies have shown the positive impact of coffee consumption on various aspects of health. Antioxidant and anti-inflammatory effects are described, reducing the risk of stroke or ischaemic heart disease [4, 5]. However, people who drink excessive amounts of coffee may experience negative effects of its consumption. Caffeine increases total cholesterol, lowers serum high-density lipoprotein concentrations and causes cardiovascular problems, including increased blood pressure, tachycardia and arrhythmia [3]. The question of whether a breastfeeding woman can drink coffee is a topic that arouses interest not only of many mothers but also of people involved in the professional care of newborns and infants. Caffeine is rapidly absorbed - mainly from the small intestine, but also partly from the stomach. Thanks to its lipophilic properties, it easily penetrates the blood-brain barrier and the placenta and also passes into the amniotic fluid or milk [3]. The maximum plasma concentration of caffeine (4–5 mg/kg) is observed within 30–120 minutes after ingestion, and the half-life is usually from 2.5 to 5 hours [6]. The binding of caffeine to plasma proteins is limited because its blood/plasma ratio is almost equal to 1. Physiologically, long-term accumulation of this substance or its metabolites is not observed [7, 8]. In newborns, however, the half-life of caffeine is approximately 80 hours [9], and in premature infants it is up to 100 hours [10]. This is caused by reduced activity of cytochrome P450 in young children, which is the main enzyme involved in caffeine metabolism, as well as incompletely developed acetylation and demethylation mechanisms [11]. Therefore, improper feeding of a breastfeeding mother may result in exposure to the toxic effects of the stimulant [12]. As Zielińska et al. [13] points out, websites are the main source of knowledge about lactation for Polish women. This article presents the results of a study on Polish women’s awareness of the safety of drinking coffee while breastfeeding, along with an overview of the most important data on this topic (Table 1).

DRINK	AVERAGE CAFFEINE CONTENT
A CUP OF BLACK COFFE	70-140 mg
A CUP OF INSTANT COFFEE	95 mg
A CUP OF ESPRESSO	57 mg
A CUP OF ICED COFFEE	50-70 mg
A GLASS OF TEA IN BAGS	46 mg
BOTTLE (0.33 L) OF COCA-COLA	45 mg

Table 1. The average caffeine content in sample drinks. Based on [1]

Aim

The study aimed to investigate awareness of the safety of drinking coffee during breastfeeding. Current recommendations on this topic were also presented.

Material and methods

Methods

The study involved 630 women aged 18–44. Using an original survey questionnaire, their knowledge of the diet of a breastfeeding mother was checked, with specifications of the aspect of coffee. The chi-square test was used to assess the existence of relationships between the studied variables. The significance level for all tests was set at 0.05. Statistical calculations were performed in IBM SPSS Statistic ver. 28 companies MACBOOK (SPSS Inc., Chicago). Additionally, a review of the available literature in the Pubmed database from 1981–2024 was performed.

The current state of knowledge

Lactation is a process influenced by genetic, physiological and environmental factors. WHO and UNICEF recommend starting breastfeeding within the first hour after birth. During the first 6 months, exclusive breastfeeding is recommended. This means refraining from giving your child any other food, as well as fluids, including water [14]. Proper nutrition of the mother plays an important role during this time. Unfortunately, there are many

inconsistencies in information about the diet intended for lactating women. Drinking coffee is one of the controversies among breastfeeding mothers. It is well known that it is the most frequently consumed psychoactive substance worldwide [15]. Excessive caffeine consumption leads to negative consequences such as tachycardia, insomnia, nausea, irritability, and even anxiety attacks [16]. Therefore, it is worth specifying what is the safe dose of caffeine while breastfeeding. Currently, however, there are various recommendations. The European Food Safety Authority recommends a daily intake of 200 mg of caffeine by breastfeeding women and emphasizes that this is a safe dose for infants [17]. The recommendations of the Polish Group of Experts included in the Dietary Guidelines for breastfeeding women are consistent with the recommendations of EFSA and indicate 200 mg of caffeine per day as a safe dose (previously 300 mg/day) [18]. However, the World Health Organization and the Centers for Disease Control and Prevention recommend caffeine consumption in amounts not exceeding 300 mg/day. The UK's National Health Service (NHS) has limited caffeine intake by breastfeeding mothers to less than 200 mg per day, stressing that higher doses may cause sleep deprivation in the infant. However, there is evidence to the contrary, showing that higher doses of caffeine may be safe. A systematic review [19] found no significant impact on infant sleep between mothers consuming high amounts of caffeine (over 300 mg/day) and low consumers during pregnancy and for 3 months postpartum [20]. One study showed very low caffeine concentrations in breast milk from mothers regularly consuming this substance [21].

Description of the study group

630 women who were pregnant and breastfeeding in the past or are currently lactating, took part in an original online survey. The majority of respondents were representatives of the age group of 27–35 years old — 481 (76.3%), with higher education — 549 (87.1%), living in the countryside — 215 (34.1%) (Tab. 1). Detailed data characterizing the study group are presented in Table 2.

Table 2. Sociodemographic data of the study group

Variables	Women, n (%)
Age [years]	
18-26	48 (7.6%)
27-35	481 (76.3%)
36-44	101 (16%)
Education	
Secondary	81 (12.9%)
Higher	549 (87.1%)
Habitation	
Village	215 (34.1%)
City up to 50 thousand inhabitants	92 (14.6%)
City from 50-150 thousand inhabitants	55 (8.7%)
City from 150-500 thousand inhabitants	152 (24.1%)
City with >500 thousand inhabitants	116 (18.4%)

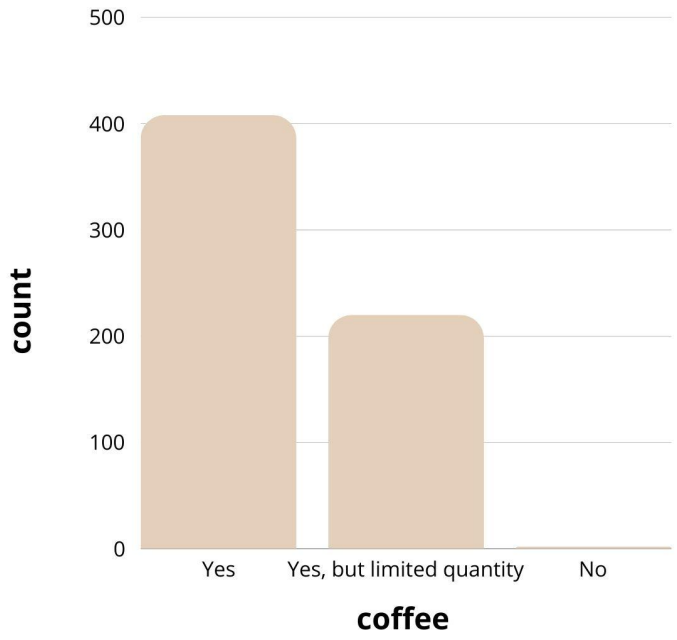

Figure 2. Graph presents answers to the question: can a mother drink coffee while breastfeeding?

In the survey, there was a question of whether breastfeeding mothers can drink coffee — 408 respondents (64.8%) answered that it is possible. More than 1/3 of all respondents — 220 (34.9%) indicated that there is a limitation in the amount of coffee consumed during lactation and it shouldn't be more than 1–2 cups a day (Fig. 2). After that it was checked what

are the sources of their knowledge. Majority of the respondents — 614 (97.5%) said that they had heard about the “nursing mother’s diet” in the past, 34 (5.4%) followed its rules during lactation, and 184 (29.2%) followed only some of them.

Respondents were also asked about the sources from which they obtained knowledge about mothers’ breastfeeding diet, they had the opportunity to indicate several of them. They mentioned family the most often — 528 (83.8%). The next places were taken by midwives and nurses — 252 (40.15%), social media — 243 (38.5%) and websites — 198 (31.43%). Doctors were in last place among medical staff; as it turned out, only 162 people (25.71%) had heard about it from them. The fewest people indicated handbooks — 98 (15.5%). It is also worth noting that most of the respondents obtained their knowledge from various sources. Only 146 (23.17%) indicated only one source of information. Moreover, over half — 369 (58.6%) admitted that they used the advice of a certified lactation consultant.

Furthermore, the chi2 test was used to check whether the respondents’ knowledge depended on their origin and education. As a result of the analysis, no statistically significant relationships were detected between the knowledge about coffee consumption during lactation and education ($p = 0.859$), age ($p = 0.856$) and place of residence ($p = 0.826$). There was also no statistically significant relationship between the mothers’ knowledge and whether they consulted a certified lactation consultant ($p = 0.472$). The strength of these compounds according to V Cramer was low.

Discussion

The issue of assessing Polish women’s knowledge about drinking coffee during lactation is not widely discussed in the literature. However, this topic is taken up by a Polish study [22] in which 520 respondents were asked whether a breastfeeding woman can drink coffee. As many as 80.4% answered affirmatively, stating that you can drink 1–2 cups of not-too-strong coffee a day. According to 7.1% of respondents, one cup of coffee is allowed once every few days, while 6.5% of respondents believe that they can drink coffee without restrictions. 6% of women exclude drinking coffee because caffeine passes into milk.
The results of the present research differ from those quoted above. In the study conducted by the authors, the majority of Polish women surveyed answered that a breastfeeding woman can drink coffee without restrictions. However, only about 1/3 of respondents mention limits in its intake. This situation seems to be unfavourable because it represents less knowledge of the surveyed women regarding the aspect of coffee in the diet of a breastfeeding mother.

Karcz et al. [23] analysed 1159 surveys in their study. Respondents were health care providers 407 (35%) and breastfeeding mothers in non-medical professions 752 (65%). It was shown that 93.27% of respondents stated coffee as a drink allowed in the diet of a breastfeeding mother. However, the study did not test detailed knowledge of the recommended amount. The results of the mentioned study coincide with the data collected in the present study. As pointed out by Zielińska et. al [13], systemic lactation education among medical staff in Poland is rather low. The education of healthcare workers on this topic significantly increases their knowledge about breastfeeding and may be crucial for better support for lactating mothers. The present research did not show a statistically significant relationship between the respondents' greater knowledge and the use of advice from a certified lactation consultant. It turned out that respondents learned about the diet of a breastfeeding mother from their family the most often, and in the case of approximately 40% of them, from social media and websites. In relation to medical staff, mothers heard about diet more often from nurses and midwives than from doctors. Zielińska et. al. [13] in their research indicates that the main source of knowledge about lactation is information obtained from the Internet. This is declared by approximately 70% of the surveyed women [13]. This is information that may prove useful when planning information campaigns aimed at promoting knowledge about lactation. It may be effective to choose social media as communication channels, and non-medical staff, i.e. sisters and mothers, as the faces of the campaign. Moreover, it is worth equipping nurses and midwives with knowledge and materials related to this issue, so that they can reach the target group even more effectively. The authors' study shows that people professionally involved in lactation care should be made aware of the need to clarify medical knowledge when providing any advice. Another important aspect due to the widespread availability of information about lactation on various websites is building awareness of the prevailing myths about the diet of a breastfeeding mother. Therefore, it is necessary to educate Polish women about EBM and how to reach reliable sources.

Limitations

The way the study was conducted limits the group only to women who use social media.

Conclusions

1. Most respondents correctly indicate coffee as a drink allowed in the diet of a breastfeeding mother. However, respondents lack knowledge about the safe, recommended dose.
2. Most often, breastfeeding women hear about the diet from their family, not from medical staff, which may lead to errors in its application in practice.
3. Using the advice of a certified lactation consultant among respondents was not associated with having more detailed knowledge about drinking coffee during lactation. This may be because the advice was not effective.
4. The direction of future research should be to determine what constitutes a problem in communication between lactating women and lactation consultants.

Article information

Data availability statement: *None.*

Ethics statement: *Positive opinion of the Bioethics Committee of the Jan Kochanowski University in Kielce no. 44/2024.*

Author contributions: *Study Design: Aleksandra Błaszczyk, Aleksandra Gładyś-Jakubczyk; Data Collection: Aleksandra Błaszczyk, Bartłomiej Zaremba, Aleksandra Gładyś-Jakubczyk, Joanna Tabak; Statistical Analysis: Bartłomiej Zaremba, Michał Wesołowski; Data Interpretation: Aleksandra Błaszczyk, Bartłomiej Zaremba, Aleksandra Gładyś-Jakubczyk; Manuscript Preparation: Aleksandra Błaszczyk, Aleksandra Gładyś-Jakubczyk, Agata Michalska; Literature Search: Aleksandra Błaszczyk, Joanna Tabak, Michał Wesołowski.*

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References

1. Sekuła M. Jak odkrycie kawy rozpoczęło nową formę życia kulturalno-obyczajowego w Europie? In: Świerczek A, Wyszogrodzka S, Kołat S. ed. Innowacje w kulturze na przestrzeni wieków. Wydawnictwo WAM, Kraków 2016: 119–136.

2. Zdrojewicz Z, Grześkowiak K, Łukasiewicz M. Czy picie kawy jest zdrowe? Med Rodz. 2016; 3: 138–145.
3. Socała K, Szopa A, Serefko A, et al. Neuroprotective effects of coffee bioactive compounds: a review. Int J Mol Sci. 2020; 22(1), doi: 10.3390/ijms22010107, indexed in Pubmed: 33374338.
4. Cornelis M, El-Sohemy A. Coffee, caffeine, and coronary heart disease. Current Opinion in Lipidology. 2007; 18(1): 13–19, doi: 10.1097/mol.0b013e3280127b04.
5. Gökcen BB, Şanlier N. Coffee consumption and disease correlations. Crit Rev Food Sci Nutr. 2019; 59(2): 336–348, doi: 10.1080/10408398.2017.1369391, indexed in Pubmed: 28853910.
6. Arnaud MJ. Metabolism of caffeine and other components of coffee, In: Garattini S. ed. Caffeine, Coffee and Health. Raven Press, New York 1993: 43–95.
7. Callahan MM, Robertson RS, Arnaud MJ, et al. Human metabolism of [1-methyl-14C]- and [2-14C]caffeine after oral administration. Drug Metab Dispos. 1982; 10(4): 417–423, indexed in Pubmed: 6126344.
8. Grosso L, Triche E, Benowitz N, et al. Prenatal caffeine assessment: fetal and maternal biomarkers or self-reported intake? Annals of Epidemiology. 2008; 18(3): 172–178, doi: 10.1016/j.annepidem.2007.11.005.
9. Le Guennec JC, Billon B. Delay in caffeine elimination in breast-fed infants. Pediatrics. 1987; 79(2): 264–268, indexed in Pubmed: 3808800.
10. Parsons WD, Neims AH. Prolonged half-life of caffeine in healthy tem newborn infants. J Pediatr. 1981; 98(4): 640–641, doi: 10.1016/s0022-3476(81)80784-6, indexed in Pubmed: 7205496.
11. Carrier O, Pons G, Rey E, et al. Maturation of caffeine metabolic pathways in infancy. Clin Pharmacol Ther. 1988; 44(2): 145–151, doi: 10.1038/clpt.1988.129, indexed in Pubmed: 3396261.
12. Pituch A, Hamułka J, Wawrzyniak A, et al. Ocena stosowania używek ze szczególnym uwzględnieniem spożycia kofeiny w wybranej grupie kobiet karmiących piersią. Rocz Panstw Zakl Hig. 2012; 63(2): 171–178.
13. Zielińska MA, Sobczak A, Hamułka J. Breastfeeding knowledge and exclusive breastfeeding of infants in first six months of life. Rocz Panstw Zakl Hig. 2017; 68(1): 51–59, indexed in Pubmed: 28303701.
14. WHO. Breastfeeding. World Health Organization. https://www.who.int/health-topics/breastfeeding#tab = tab_2..

15. Mitchell DC, Knight CA, Hockenberry J, et al. Beverage caffeine intakes in the U.S. Food Chem Toxicol. 2014; 63: 136–142, doi: 10.1016/j.fct.2013.10.042, indexed in Pubmed: 24189158.
16. Rohweder R, de Oliveira Schmalfuss T, Dos Santos Borniger D, et al. Caffeine intake during pregnancy and adverse outcomes: An integrative review. Reprod Toxicol. 2024; 123: 108518, doi: 10.1016/j.reprotox.2023.108518, indexed in Pubmed: 38042437.
17. EFSA NDA Panel (EFSA Panel on Dietetic Products, Nutrition and Allergies). Scientific Opinion on the safety of caffeine. EFSA Journal. 2015; 13(5), doi: 10.2903/j.efsa.2015.4102.
18. Bzikowska-Jura A, Żukowska-Rubik M, Wesołowska A, et al. Recommendations of the Expert Group included in the Dietary Guidelines for breastfeeding women. Stand Med Pediatr. 2023; 20: 233–248.
19. Clark I, Landolt HP. Coffee, caffeine, and sleep: A systematic review of epidemiological studies and randomized controlled trials. Sleep Med Rev. 2017; 31: 70–78, doi: 10.1016/j.smrv.2016.01.006, indexed in Pubmed: 26899133.
20. Santos IS, Matijasevich A, Domingues MR. Maternal caffeine consumption and infant nighttime waking: prospective cohort study. Pediatrics. 2012; 129(5): 860–868, doi: 10.1542/peds.2011-1773, indexed in Pubmed: 22473365.
21. Kato I, Kozai S, Htun Y. Stężenie kofeiny w mleku japońskich matek karmiących piersią. Karmienie piersią Med. 2018; 13(7).
22. Bik-Multanowski M, Łagosz A, Bakalarz R. Wiedza kobiet na temat odżywiania w okresie laktacji. https://nursing.com.pl/artykul/wiedza-kobiet-na-temat-odzywiania-w-okresie-laktacji-5f3e9f3f99dc40003dcde578.
23. Karcz K, Lehman I, Królak-Olejnik B. Foods to avoid while breastfeeding? Experiences and Opinions of Polish Mothers and Healthcare Providers. Nutrients. 2020; 12(6): 1644, doi: 10.3390/nu12061644.