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Dental care in pregnancy – the state of knowledge among Polish dentists and gynaecologists, and factors affecting knowledge about dental management in pregnancy

Opieka stomatologiczna w ciąży – stan wiedzy polskich dentystów i ginekologów oraz czynniki wpływające na wiedzę na temat postępowania stomatologicznego w ciąży

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KEYWORDS

dental management in pregnancy, dentists' knowledge, gynaecologists' knowledge, oral health in pregnancy

SUMMARY

Introduction. The overall health condition, as well as the course and duration of pregnancy are important determinants of the term of delivery and child's well-being, including birth weight and oral health. Unfortunately, dental attendance of pregnant women is insufficient. This may result from the poor oral health knowledge of dentists and obstetrician-gynaecologists.

Aim. The aim of the study was to assess the knowledge of Polish dentists and obstetrician-gynaecologists on oral health and dental care in pregnant women, as well as its socio-economic determinants.

Material and methods. An anonymous questionnaire for dentists and obstetrician-gynaecologists, which included questions on the demographic characteristics of respondents, as well as 29 single-choice questions on dental issues in pregnancy, which we classified into 4 thematic categories (I – relationship between maternal periodontal diseases and the course of pregnancy/child's health; II – dental management and oral physiological changes in pregnancy; III – the safety of dental procedures in pregnancy; IV – providing health advice) was carried out. The data were analysed statistically.

Results. A total of 485 dentists and 185 obstetrician-gynaecologists (670 doctors in total) completed the questionnaire. Dentists were more likely to know the relationship between oral conditions in pregnancy and birth weight, the future risk of periodontal diseases and caries in the child. However, they were less likely to provide correct answers to questions on the safety of diagnostic radiology in pregnancy. On the other hand, obstetrician-gynaecologists were more likely to have doubts about performing some dental procedures, including fluoride varnish application and scaling. The mean number of correct answers to all questions was higher in the group of dentists vs. gynaecologists. Correlations with age and a longer period of practice were found in the group of dentists, while correlations with age and the type of practice were observed among gynaecologists.

Conclusions. The poor level of knowledge of Polish dentists and gynaecologists on dental treatment and its safety in pregnant women indicates the need for education of dental and obstetric practitioners. The level of knowledge in both these professional groups is associated with age and, additionally, with the length of practice in the case of dentists, and the type of practice in the case of obstetrician-gynaecologists.

SŁOWA KLUCZOWE

postępowanie stomatologiczne w ciąży, wiedza dentyistów, wiedza ginekologów, stan zdrowia jamy ustnej w ciąży

STRESZCZENIE

Wstęp. Stan zdrowia ogólnego, przebieg i czas trwania ciąży są ważnymi czynnikami wpływającymi na termin porodu i dobrostan dziecka, w tym jego masę urodzeniową i zdrowie jamy ustnej. Zgłaszalność kobiet w ciąży do lekarza dentyisty nie jest jednak wystarczająca. Przyczynami ograniczonego korzystania z opieki stomatologicznej w czasie ciąży może być niewystarczająca wiedza lekarzy dentyistów i ginekologów-położników.

Cel pracy. Celem pracy była ocena wiedzy lekarzy dentyistów i ginekologów-położników w Polsce w zakresie problemów zdrowia jamy i opieki stomatologicznej u kobiet w ciąży oraz jej uwarunkowań socjoekonomicznych.

Materiał i metody. Anonimowy elektroniczny kwestionariusz skierowany do lekarzy dentyistów i ginekologów-położników zawierał pytania dotyczące charakterystyki demograficznej respondentów oraz 29 pytań jednokrotnego wyboru dotyczących zagadnień stomatologicznych w ciąży podzielonych na 4 grupy tematyczne (grupa I – związek między chorobami przyzębia ciężarnej a przebiegiem ciąży i stanem zdrowia dziecka, grupa II – postępowanie stomatologiczne oraz zmiany fizjologiczne dotyczące zdrowia jamy ustnej w ciąży, grupa III – bezpieczeństwo zabiegów stomatologicznych w ciąży, grupa IV – udzielanie porad prozdrowotnych). Dane poddano analizie statystycznej.

Wyniki. Ankiety wypełniło 485 dentyistów i 185 ginekologów-położników (łącznie 670 lekarzy). Dentyści częściej byli świadomi zależności między chorobami jamy ustnej ciężarnej a masą urodzeniową dziecka oraz ryzykiem chorób przyzębia i próchnicy u dziecka w przyszłości. Rzadziej udzielali natomiast prawidłowych odpowiedzi dotyczących bezpieczeństwa wykonywania diagnostyki radiologicznej w ciąży. Lekarze ginekolodzy częściej mieli natomiast wątpliwości dotyczące wykonywania niektórych procedur stomatologicznych, w tym aplikacji lakieru fluorkowego i skalingu. Średnia liczba prawidłowych odpowiedzi na wszystkie pytania ogółem w grupie dentyistów była wyższa niż w grupie ginekologów. Wśród dentyistów stwierdzono korelację z wiekiem i dłuższym okresem praktykowania, wśród ginekologów zaś z wiekiem i typem praktyki.

Wnioski. Niezadowalający stan wiedzy o postępowaniu stomatologicznym i jego bezpieczeństwie w ciąży wśród dentyistów i ginekologów w Polsce wskazuje na konieczność prowadzenia działań edukacyjnych personelu stomatologicznego i pełniącego opiekę okołoporodową. Stan wiedzy w obu grupach zawodowych jest związany z wiekiem lekarzy, w grupie dentyistów dodatkowo z okresem praktykowania, a ginekologów-położników z typem praktyki.

INTRODUCTION

The overall health condition, as well as the course and duration of pregnancy are important determinants of the term of delivery and child's well-being, including birth weight and oral health. Local inflammation associated with e.g. periodontal diseases, which is a reservoir for gram-negative anaerobic bacteria, may have systemic consequences for a pregnant woman and the developing foetus, such as an increased risk of preterm delivery, intrauterine growth restriction, pre-eclampsia or gestational diabetes, due to the increased vascular permeability and production of pro-inflammatory cytokines.

The relationship between maternal oral health and the course of pregnancy, the term of delivery, and even the oral health in the child is now beyond doubt. In accordance with the Regulation of the Minister of Health of 16 August 2018 regarding the organisational standard of perinatal care, a woman should report to the dentist before 10th gestational week. The aim of such a visit is to assess oral health, specify preventive and therapeutic needs, as well as plan further management and implement necessary procedures.

Dental attendance among pregnant women is insufficient. Studies in Poland showed that despite the common conviction of women about the safety of dental treatment during pregnancy, only 62.3% of pregnant women reported for dental appointment (1). The reasons for the limited use of dental care during pregnancy include poor awareness of the importance of maintaining oral health among women and, at the same time, insufficient involvement of non-dental personnel providing perinatal care in providing oral health education and requesting feedback on dental visit, as in accordance with the regulation. The available data indicate that only 17.6% of pregnant women are referred by their obstetrician-gynaecologists to a dental office. At the same time, a relationship was found between receiving a referral and visiting a dentist. A total of 87.3% of women who received referral reported for a dental visit. In the group without referral, only 56.9% of women had an appointment (2). It was also shown that dental attendance increases when the referring physician requests a written feedback on the state of oral health. At the same time it was found that one in three women who reported for a dental visit were offered no dental services, including preventive

management. The scope of dental services provided for pregnant women was also limited. Diagnostic radiology was performed in only 2.5% of women despite the fact that 4 times more frequent endodontic treatment was carried out requiring radiographic diagnostics (1). The reasons for the limited use of dental care during pregnancy may include poor knowledge of dentists and obstetrician-gynaecologists on the relationships between oral health and the general health in a pregnant woman, the impact of oral pathologies on the course of pregnancy and foetal health, as well as on the principles of dental management, its safety in particular.

AIM

The aim of the study was to assess the knowledge of Polish dentists and obstetrician-gynaecologists on oral health and dental care in pregnant women, as well as its socio-economic determinants.

MATERIAL AND METHODS

Dentists and obstetrician-gynaecologists were invited to participate in an electronic survey. To this end, links were distributed in social networks, forums and professional portals, medical conferences and by mail. The online questionnaire was active from June to December 2018. The participation in the study was voluntary and anonymous.

The questionnaire included questions on the demographic characteristics of respondents (sex; age; type, place and duration of practice; specialisation; mean number of pregnant patients per month), as well as 29 single-choice questions on dental issues in pregnancy classified into 4 categories (I – relationship between maternal periodontal diseases and the course of pregnancy/child's health; II – dental management and physiological changes affecting oral health in pregnancy; III – the safety of dental procedures in pregnancy; IV – providing health advice). The questionnaire was evaluated by 10 dentists and 5 gynaecologists, and modified in accordance with their comments.

Statistical analysis was performed using Statistica 12 (Statsoft), the chi square (χ^2) independence test, the t-test, one-way analysis of variance, and Spearman's rank correlation coefficient. The level of significance was set at $p < 0.05$.

The study was approved by the Bioethics Committee of the Medical University of Warsaw (AKBE 228/2018 dated 10 December 2018).

RESULTS

A total of 485 dentists and 185 obstetrician-gynaecologists (670 doctors in total) participated in the survey. Table 1 presents the characteristics of the study group.

The percentages and mean numbers of correct answers provided by dentists and obstetrician-gynaecologists are shown in table 2.

Statistically significant differences were found between the answers provided by dentists and obstetrician-gynaecologists. Dentists were more likely to know the relationship

between oral conditions in pregnancy and birth weight, as well as the future risk of periodontal diseases and caries in the child. However, they were less likely to provide correct answers regarding the safety of diagnostic radiology in pregnancy. On the other hand, gynaecologists were more likely to have doubts about performing some dental procedures, including fluoride varnish application and scaling, in pregnant women (tab. 2).

The results of one-way analysis of variance showing the importance of age, place and period of practice, as well as the type of practice on the level of knowledge of dentists and gynaecologists are presented in table 3. The mean number of correct answers to all questions was higher among dentists vs. gynaecologists. Correlations with age and a longer period of practice were found in the group of dentists, while correlations with age and type of practice (private practice and agreement with the National Health Fund, clinic/hospital) were found among gynaecologists.

A total of 349 (72%) dentists had no specialisation, 82 (16.9) were specialised in paediatric or conservative dentistry with endodontics, and 54 (11.1%) were specialised in other fields of dentistry. No differences in the number of correct answers were found among dentists depending on specialisation or its lack; no differences were found between dentists issuing written confirmation or an entry in maternity records regarding oral health in terms of the mean number of correct answers to all questions, except for providing health advice to patients (category IV, t-test $p < 0.0001$).

DISCUSSION

The level of knowledge on the relationship between maternal periodontal diseases and preterm delivery was similar among dentist (88.2 vs. 88.1%) and higher compared to other countries (3-5). However, dentists were more likely to be aware of the relationship between poor maternal periodontal health and the risk of pre-eclampsia (55.1 vs. 23.2%). Similar observations were made for low birth weight (79 vs. 40%) and periodontal health in the child (69.5 vs. 30.3%). Nutalapati et al. (6) reported a similar proportion of gynaecologists (38.8%) knowledgeable on the correlation between poor maternal periodontal health and the risk of low birth weight, whereas other authors reported the percentage to be significantly higher (Shenoy et al. (7) – 59.8%, Hashim and Akbar (3) – 67.3%, Wilder et al. (8) – 84%).

A similar proportion of dentists (90.7%) and gynaecologists (92.4%) were convinced that dental treatment may be implemented in any trimester; however, 89.9% of dentists and 54.1% of gynaecologists considered the second trimester to be the best period for treatment. A similar proportion of dentists was reported by Da Costa et al. (73.7%) (9), while it was significantly higher among gynaecologists (Paneer et al. (5) – 74%, Hashim and Akbar (3) – 91.7%).

Tab. 1. Characteristics of the study group

		Dentists N = 485 (100%)	Gynaecologists N = 185 (100%)	Total N = 670 (100%)
Sex	female	406 (83.7%)	112 (60.5%)	518 (77.3%)
	male	79 (16.3%)	73 (39.5%)	152 (22.7%)
	X-squared = 39.681 p-value < 0.0001*			
Age	< 30 years	154 (31.8%)	19 (10.3%)	173 (25.8%)
	30-40 years	191 (39.4%)	52 (28.1%)	243 (36.3%)
	> 40 years	140 (28.9%)	114 (61.6%)	254 (37.9%)
X-squared = 66.528 p-value < 0.0001*				
Practice location	city > 100 thousand inhabitants	273 (56.3%)	109 (58.9%)	382 (57%)
	town	165 (34%)	62 (33.5%)	227 (33.9%)
	country	26 (5.4%)	3 (1.6%)	29 (4.3%)
	mixed	21 (4.3%)	11 (5.9%)	32 (4.8%)
X-squared = 5.2308 p-value = 0.1557				
Type of practice	agreement with the National Health Fund	22 (4.5%)	58 (31.4%)	80 (11.9%)
	private	292 (60.2%)	38 (20.5%)	330 (49.3%)
	mixed system	171 (35.3%)	89 (48.1%)	260 (38.8%)
X-squared = 66.528 p-value < 0.0001*				
Length of practice	< 5 years	154 (31.8%)	41 (22.2%)	195 (29.1%)
	5-10 years	127 (26.2%)	29 (15.7%)	156 (23.3%)
	11-20 years	103 (21.2%)	13 (7%)	116 (17.3%)
	> 20 years	101 (20.8%)	102 (55.1%)	203 (30.3%)
X-squared = 78.236 p-value < 0.0001*				
Mean number of pregnant patients/month		4.53 (± 23.35)	37.43 (± 39.02)	13.62 (± 32.09)
t = -10.755 p-value < 0.0001*				

*statistical significance p < 0.05

Tab. 2. The frequency of correct answers to the questionnaire among dentists and obstetrician-gynaecologists (correct answers in brackets)

Questions	Dentists N (%)	Gynaecologists N (%)	chi ² p = value
I. Is there a relationship between periodontal diseases and:			
1. preterm delivery? (YES)	428 (88.2%)	163 (88.1%)	X-squared = 0.232 p-value = 0.9211
2. spontaneous abortion? (YES)	418 (86.2%)	159 (85.9%)	X-squared = 0.0064 p-value = 0.9361
3. pre-eclampsia? (YES)	267 (55.1%)	43 (23.2%)	X-squared = 53.23 p-value < 0.0001*
4. low birth weight? (YES)	383 (79%)	74 (40%)	X-squared = 91.996 p-value < 0.0001*
5. periodontal health in the child? (YES)	337 (69.5%)	56 (30.3%)	X-squared = 83.31 p-value < 0.0001*
Mean number of correct answers (± SD)	3.06 (± 1.13)	1.96 (± 1.22)	t = 10.664 p-value < 0.0001*
II. Do you agree with the below statements?			
1. Second trimester is the best period for dental treatment. (YES)	436 (89.9%)	100 (54.1%)	X-squared = 105.3 p-value < 0.0001*
2. Dental treatment may be performed in all trimesters. (YES)	440 (90.7%)	171 (92.4%)	X-squared = 0.29828 p-value = 0.585
3. Dental treatment should be postponed until after delivery; only health education should be implemented during pregnancy. (NO)	467 (96.3%)	163 (88.1%)	X-squared = 14.54 p-value = 0.002*
4. During pregnancy, dental care should be limited to acute conditions. (NO)	468 (96.5%)	160 (86.5%)	X-squared = 21.158 p-value < 0.0001*
5. Dental problems escalate during pregnancy. (YES)	354 (73%)	147 (79.5%)	X-squared = 2.6388 p-value = 0.1043
6. The developing foetus drains the calcium from the mother's teeth. (NO)	367 (75.7%)	37 (20%)	X-squared = 171.05 p-value < 0.0001*
7. Maternal caries may promote caries in the child. (YES)	437 (90.1%)	91 (49.2%)	X-squared = 131.78 p-value < 0.0001*
8. High levels of maternal cariogenic bacteria increase the risk of caries in the child. (YES)	457 (94.2%)	88 (47.6%)	X-squared = 189.05 p-value < 0.0001*
9. Changing eating habits during pregnancy (snacking, preference for sweet products) affects oral health in the patient. (YES)	473 (97.5%)	167 (90.3%)	X-squared = 14.83 p-value = 0.002*
10. Gastrointestinal symptoms (vomiting, gastroesophageal reflux) affect oral health in patients. (YES)	474 (97.7%)	157 (84.9%)	X-squared = 38.131 p-value < 0.0001*
11. Maternal smoking affects oral health in the child. (YES)	375 (77.3%)	141 (76.2%)	X-squared = 0.040316 p-value = 0.8409
Mean number of correct answers (± SD)	9.79 (± 1.35)	7.69 (± 1.8)	t = 14.44 p-value < 0.0001*

Questions	Dentists N (%)	Gynaecologists N (%)	chi ² p = value
III. Is it safe during pregnancy to:			
1. extract a tooth? (YES)	398 (82.1%)	179 (96.8%)	X-squared = 0.040316 p-value = 0.8409
2. perform diagnostic dental radiography? (YES)	191 (39.4%)	115 (62.2%)	X-squared = 27.099 p-value < 0.0001*
3. use local anaesthesia for dental treatment? (YES)	465 (95.9%)	167 (90.3%)	X-squared = 6.8538 p-value = 0.008845*
4. treat dental caries (fillings)? (YES)	485 (100%)	175 (94.6%)	X-squared = 23.064 p-value < 0.0001*
5. implement endodontic treatment? (YES)	439 (90.5%)	141 (76.2%)	X-squared = 22.334 p-value < 0.0001*
6. apply high-fluoride varnish in a dental office? (YES)	355 (73.2%)	47 (25.4%)	X-squared = 125.46 p-value < 0.0001*
7. use fluoride toothpaste? (YES)	472 (97.3%)	138 (74.6%)	X-squared = 82.059 p-value < 0.0001*
8. use scaling to remove tartar? (YES)	416 (85.8%)	120 (64.9%)	X-squared = 35.294 p-value < 0.0001*
Mean number of correct answers (±SD)	6.64 (± 1.35)	5.85 (± 1.76)	t = 5.5422 p-value < 0.0001*
IV. Do you inform pregnant patients about:			
1. harmful effects of smoking tobacco (active and passive) on the health of the foetus and the health of the child after birth? (YES)	424 (87.4%)	183 (98.9%)	X-squared = 19.449 p-value < 0.0001*
2. the need to eliminate oral inflammation before delivery? (YES)	474 (97.7%)	175 (94.6%)	X-squared = 3.3698 p-value = 0.0664
3. harmful effects of poor maternal oral health on the course of pregnancy? (YES)	466 (96.1%)	170 (91.9%)	X-squared = 4.0509 p-value = 0.04415*
4. harmful effects of poor maternal oral health on the oral health in the child? (YES)	448 (92.4%)	115 (62.2%)	X-squared = 88.831 p-value < 0.0001*
5. hygiene and dietary recommendations for oral health prophylaxis? (YES)	434 (89.5%)	148 (80%)	X-squared = 9.7439 p-value = 0.001799*
Mean number of correct answers (± SD)	4.63 (± 0.81)	4.28 (± 1.06)	t = 4.121 p-value < 0.0001*
Mean number of correct answers in total	24.12 (± 2.93)	19.77 (± 3.84)	t = 13.937 p-value < 0.0001*
Mean percentage of correct answers	83.16 (± 10.09)	68.16 (± 13.25)	t = 13.937 p-value < 0.0001*

*statistical significance p < 0.05

Tab. 3. The impact of professional experience on the level of knowledge – the mean number of correct answers (one-way analysis of variance)

		Mean number of correct answers to total questions (± SD)	
		Dentists	Gynaecologists
Age	< 30 years	24.63 (± 2.82)	19.63 (± 2.31)
	30-40 years	24.48 (± 2.77)	21.23 (± 3.85)
	> 40 years	23.06 (± 3.0)	19.12 (± 3.88)
		F = 13.525; p-value < 0.0001*	F = 5.6635; p-value = 0.00411*
Practice location	city > 100 thousand inhabitants	24.37 (± 2.98)	19.68 (± 4.23)
	town	23.73 (± 2.88)	19.9 (± 3.13)
	country	23.46 (± 2.86)	18.33 (± 2.08)
	mixed	24.62 (± 2.29)	20.27 (± 4.05)
		F = 2.3037; p-value = 0.0761	F = 0.2449; p-value = 0.8649
Type of practice	agreement with the National Health Fund	23.77 (± 3.62)	19.55 (± 3.63)
	private	23.89 (± 2.92)	18.32 (± 5.03)
	mixed system	24.56 (± 2.81)	20.53 (± 3.19)
		F = 2.9979; p-value = 0.05082	F = 4.7345; p-value = 0.009897*
Length of practice	< 5 years	24.8 (± 2.65)	20.88 (± 3.47)
	5-10 years	24.36 (± 3.0)	20.38 (± 3.91)
	11-20 years	23.97 (± 2.82)	18.69 (± 4.46)
	> 20 years	22.92 (± 3.02)	19.28 (± 3.81)
		F = 9.2397; p-value < 0.0001*	F = 2.3135; p-value = 0.07754
Mean number of pregnant patients/month (Spearman's rank correlation)		0.019187257	-0.02105287

*statistical significance $p < 0.05$

A total of 96.5% of dentists considered dental care limited to emergency (acute) cases to be incorrect, which corresponded to Da Costa et al. (90.9%) (9) and 86.5% of gynaecologists, similarly in a study by Gerge et al. – 86.1% (10). Moreover, 96.3% of dentists and 88.1% of gynaecologists considered postponing treatment until pregnancy termination as incorrect. Knowledge on the risk factors for caries associated with material caries and high maternal levels of cariogenic bacteria was shown by 90.1 and 94.2% of dentists

and 49.2 and 47.6% of gynaecologists. One in four dentists and 80% of gynaecologists believed that the foetus takes calcium from maternal teeth. A study among Australian medical personnel providing prenatal and perinatal care showed that more than half of respondents (58.2%) also agreed with this statement (10).

The proportion of gynaecologists referring their pregnant patients to the dentist (about 80%) was higher compared to other studies (5, 8, 11), and lower than the one reported

by Hashim and Akbar (3). However, this is not confirmed by a study conducted among patients of whom only 17.6% received a referral during pregnancy (2).

Although more gynaecologists than dentists (62.2 vs. 39.4%) considered diagnostic radiology as safe in pregnancy, this knowledge is still insufficient. According to other authors, the percentage of dentists who consider radiology to be safe in pregnancy ranges between 16.2 and 81.6% (9, 12, 13). Other researchers point to a lower percentage among gynaecologists (Paneer et al. (5) – 21%, Hashim and Akbar (3) – 27%). The use of local anaesthesia with vasoconstrictors was considered safe by more than 90% of doctors, which corresponds to the findings presented by George et al. (10), who conducted their study among pre- and perinatal care personnel, while other authors report significantly lower rates among gynaecologists (26-40.7%) (3, 5).

In our study group, important determinants of the level of knowledge included age and longer practice in dentists, as well as age and type of practice (private practice, agreement with the National Health Fund; clinic/hospital) in gynaecologists. Rahman et al. (14) also pointed to age as an important factor influencing the level of knowledge among gynaecologists. The same authors observed a higher level of knowledge among public health care doctors (14).

CONCLUSIONS

The poor level of knowledge of Polish dentists and gynaecologists about dental treatment and its safety in pregnant women indicates the need for education of dental and obstetric personnel. The level of knowledge in both these professional groups is associated with age and, additionally, with the period of practice in the case of dentists, and the type of practice in the case of obstetrician-gynaecologists.

CONFLICT OF INTEREST KONFLIKT INTERESÓW

None
Brak konfliktu interesów

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