



Studying the Opinions of Medical Workers about Preconception Care

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Abstract

BACKGROUND: A high level of knowledge of medical personnel and confidence in the ongoing preconception care activities can have a positive impact on public health in general.

AIM: The aim of the study was to study the opinion of medical personnel (doctors and nurses) on the methods of preconception care and measures to improve the provision of medical care before conception in Kazakhstan (Karaganda region).

METHODS: The data obtained during the study were subjected to statistical processing by the method of variation statistics using the free version of the EPI InfoTM program. The arithmetic mean (M) and standard deviation (\pm SD) were calculated for quantitative indicators, the data were presented as $M \pm SD$. The Krusk-Wallis test (H test) was used to compare means. Absolute (n) and relative (%) values describe qualitative variables. χ^2 was used to compare frequencies and qualitative variables. The critical significance level when testing statistical hypotheses was taken as 0.05. In the Karaganda region, a survey was conducted among doctors of the specialty general practitioner, general practitioner/family doctor, obstetrician-gynecologist, and nursing staff. The survey was aimed at identifying the knowledge of health professionals about preconception care and at identifying barriers and factors preventing preconception care. Three hundred and sixty-five doctors and 375 nurses/midwives took part in the survey.

RESULTS: Medical staff were asked to fill out a questionnaire, which addressed issues related to the ways of providing PC, barriers to the implementation of PC. 40% (n = 292) of respondents noted that preconception care should be carried out by specialists from the family planning office. About 24.3% (n = 180) do not conduct conversations on preconception care due to lack of time, knowledge, a clear algorithm for conducting PC, and because they do not consider it their functional duty.

CONCLUSION: Measures were proposed to improve the level of provision of preconception training in the Republic of Kazakhstan.

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Introduction

In 2012, the World Health Organization noted that about 15 million babies are born each year as a result of preterm birth [1].

It has been established that many risk factors for perinatal mortality, morbidity, as well as preterm birth and related diseases in adulthood originate in the periconception period – the period before and shortly after conception [2].

Lifestyle changes during the periconception period present opportunities to prevent later risks. Preconception care reduces the risks of developing pathologies on the part of the health of the future offspring, since it is provided even before risk factors can have a negative impact on the developing fetus. Another factor in favor of preconception care is that the most critical stages of embryonic development

– organogenesis and placentation occur in the first trimester of pregnancy and lifestyle changes already during pregnancy make an insignificant contribution to the birth of a healthy child than a competent approach in preparing for pregnancy [3].

There are quite a few studies that note the impact of an unhealthy lifestyle before or during pregnancy (alcohol, smoking, psychoactive substances, etc.) on the course of pregnancy and the birth of a healthy child [4], [5].

Preconception health professionals (general practitioners, obstetricians, midwives, and other health professionals) can significantly influence the use of opportunities to prepare couples for pregnancy [6], [7]. In the Republic of Kazakhstan, preconception counseling is provided by obstetrician-gynecologists, general practitioners/family doctors, nursing staff, and specialists in family planning offices [8].

Despite the fact that primary health-care facilities have been recognized as the main link in the provision of preconception counseling services [9], health workers do not systematically discuss with the population the issues of preparation for pregnancy [10], [11].

The previous researchers have identified many barriers to preconception counseling, as well as ways to solve these problems, but the level of preconception care remains quite low [12], [13].

Suggested barriers

Five groups were identified - lack of time, knowledge and training, lack of a reimbursement structure, insufficient coordination of the PCC organization, and conflicting views on professional responsibility [12], [14], [15].

Poels *et al.* in their study concluded that it is necessary to study in more detail the opinion of medical personnel on the distribution of responsibilities for the provision of PCC and the improvement of interdisciplinary cooperation for the successful implementation of PCC programs [14].

Thus, the purpose of this study was to study the views of medical personnel (doctors and nurses) on the methods of preconception care and measures to improve the provision of medical care before conception in Kazakhstan (Karaganda region).

Materials and Methods

Our study was conducted in medical institutions of various levels (village, city, and region) of the Karaganda region. According to the Bureau of National Statistics of the Agency for Strategic Planning and Reforms, 1372.6 thousand people live in the Karaganda region – this is the 4th place in terms of population in the Republic of Kazakhstan [16].

As previously noted, preconception services are provided by obstetrician-gynecologists (AGs), general practitioners/family doctors (GPs), general practitioners, nursing staff, and family planning specialists [8].

The study was conducted through a questionnaire in the period from February 8, 2022 to March 8, 2022. According to the health department of the Karaganda region, as of December 31, 2021, 653 AH doctors, therapists, and GPs, as well as 11,043 nursing staff specialists (obstetrician, nurse/brother of the GP, paramedic) work in medical institutions. Based on the data presented, the sample was distributed as follows (with a CI of 5%), we needed to conduct a survey among 242 physicians and 371 nursing professionals. The

principal researcher traveled to medical organizations and offered specialists to complete an online survey. Health workers were asked to fill out a single questionnaire that included 21 questions. Filling out the questionnaire took about 20 min. The questionnaires used in this study were specially designed because no suitable validated questionnaires were found. The questionnaires were developed in collaboration with a panel of experts and checked for content validity. The questionnaire contained a passport part (four questions), barriers related to the health-care system (three questions); barriers to education for doctors and nurses (two questions); barriers that arise when conducting preconception counseling and documenting this service (eight questions); social responsibility of the population (three questions); and suggestions and recommendations of the respondents (one question). An explanation of confidentiality, anonymity, and the purpose of the study was given before completing the questionnaire. The medical staff were presented with a QR code for the questionnaire. Informed consent was written at the beginning of the questionnaire, the respondents could refuse to participate in the survey at any time and leave the study. Only completed questionnaires were subject to consideration. The study and the questionnaire were approved by the Bioethics Committee of KMU (protocol No. 6 dated February 07, 2022).

Data were entered into the electronic database EPI InfoTM (official site <http://www.cdc.gov/epiinfo/>). The data obtained during the study were subjected to statistical processing by the method of variation statistics using the free version of the EPI InfoTM program. The arithmetic mean (M) and standard deviation (\pm SD) were calculated for quantitative indicators, the data were presented as $M \pm SD$. The Krusk–Wallis test (H test) was used to compare means. Absolute (n) and relative (%) values describe qualitative variables. Z-test and χ^2 were used to compare frequencies and qualitative variables.

The critical significance level (p) when testing statistical hypotheses was taken as 0.05.

Results

In total, 740 medical workers took part in the survey, of which: 365 doctors and 375 mid-level specialists. We were able to collect information from more specialists than planned. Distribution data by specialty, length of service, and level of medical care are presented in Table 1.

Among doctors, general practitioners/family doctors (n = 216; 59.2%) were the most represented specialists, followed by obstetrician-gynecologists (n = 100; 27.4%), internists (n = 49; 13.4%); among mid-level specialists – a nurse/brother medical general

Table 1: Characteristics of respondents

| Profession | Cohort n (%) | Organization level | | | Experience (years (%)) | | | | | Average age |
|--|--------------|--------------------|-------------|---------------|------------------------|-----------|-----------|-----------|-----------|-------------|
| | | Село n (%) | Город n (%) | Область n (%) | 0–3 | 3–5 | 5–10 | >10 | >25 | |
| Doctors n = 365 | | | | | | | | | | |
| Obstetrician-gynecologists | 100 (27.4) | 24 (24) | 66 (66) | 10 (10) | 19 (19) | 16 (16) | 6 (6) | 23 (23) | 36 (36) | 40.7 |
| Therapists | 49 (13.4) | 6 (12.2) | 43 (87.8) | 0 | 20 (40.8) | 3 (6.1) | 6 (12.2) | 6 (12.2) | 14 (28.7) | 41.8 |
| General practitioners/family doctors | 216 (59.2) | 73 (33.8) | 140 (64.8) | 3 (1.4) | 106 (49.1) | 25 (11.6) | 34 (15.7) | 9 (4.2) | 42 (19.4) | 35 |
| Middle managers n = 375 | | | | | | | | | | |
| Medical sister/medical brother of general practice/paramedic | 309 (82.4) | 84 (27.2) | 191 (67.8) | 34 (11) | 63 (20.4) | 24 (7.8) | 50 (16.2) | 80 (25.9) | 92 (29.7) | 40.2 |
| Midwife | 66 (17.6) | 31 (47) | 29 (44) | 9 (9) | 7 (10.6) | 9 (13.6) | 17 (25.8) | 18 (27.3) | 15 (22.7) | 37.2 |

practitioner/feldsher (n = 309; 82.4%), and obstetricians (n = 66; 17.6%). Based on the data in Table 1, we can conclude that respondents of various ages and qualifications took part in the survey, which makes it possible to assess the views of both a young specialist and highly qualified specialists.

In the Republic of Kazakhstan, according to the legislation, the responsibility for providing medical care lies with a multidisciplinary team – an obstetrician-gynecologist, an internist, a general practitioner/family doctor, nursing staff assisting the above specialists, and an obstetrician/family planning specialist. In our study, we wanted to find out, according to the experts themselves, who is more responsible for conducting preconception care. The data are presented in Figure 1.

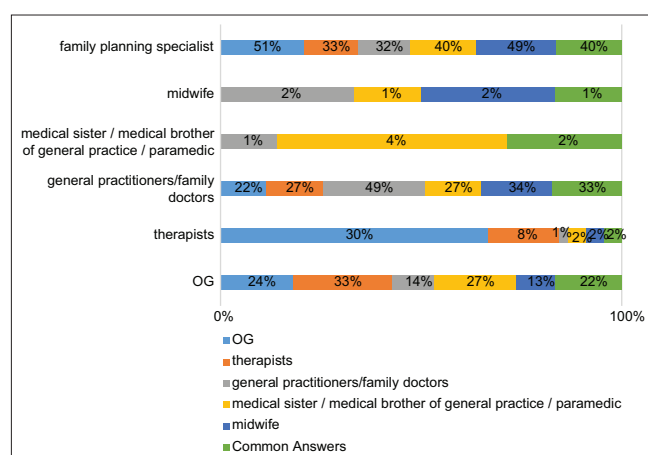


Figure 1: Respondents' answers to the question: "Who, in your opinion, is most responsible for conducting the PC"

According to the results of the survey, it was found that 40% (n = 292) of respondents believe that preconception care should be carried out by specialists from the family planning office, 33% (n = 245) – general practitioners, 22% (n = 163) – obstetrician-gynecologists, average staff in general account for only 3% (n = 23). Furthermore, using χ^2 , opinions were compared between different groups of specialists, almost all groups answered the same way; however, the answers of GPs/family doctors had differences in relation to obstetrician-gynecologists and general practitioners (p = 0.05), that is, GPs/family doctors in take more responsibility.

To the question "Have you been trained (training cycles, courses) on preconception counseling, 43.9% of respondents (n = 325) answered that they had been in the past 10 years; 43.8% (n = 324) – that they

did not, 12.3% (n = 91) – that they do not remember. The lowest percentage of training in the provision of preconception services was in the group of nursing staff – 35.3% and GPs/family doctors – 37.9%.

About 62.4% (n = 462) of the respondents answered that they consider it necessary to conduct preparation interviews with each patient, 13.2% (n = 98) conduct interviews only when the patient is interested on their own, and 24.3% (n = 180) do not conduct interviews due to the following reasons: Lack of time (mainly GP doctors – 10%); consider themselves incompetent (nursing personnel – 9.5%); do not consider it their functional duty (nursing staff – 59.4%).

The main reasons for the specialist's refusal to discuss preconception care were lack of time – 42% (n = 311), lack of a clear algorithm for providing preconception care – 23.4% (n = 173), lack of knowledge – 22.4% (n = 166), lack of motivation – 10.4% (n = 77), and found it difficult to answer – 1.8% (n = 13).

Next, we considered the social responsibility of the population through the eyes of specialists. Applicability of the population for PP turned out to be quite low – 66.5% of specialists noted that three out of 10 women apply to them and 33.5% – that they are addressed in 50–100% of cases. The main reasons for women to turn to specialists were reproductive system disorders, extragenital diseases, a history of missed pregnancies, and aggravated heredity.

Suggestions for improving preconception care were manually processed by the investigator and grouped into eight categories.

Based on Table 2, it is necessary to pay attention to sanitary and educational work among the population, which should increase joint and several responsibility, introduce family planning specialists into the staff, which will relieve doctors of general practitioners and

Table 2: Suggestions for improving preconception care

| Response groups | Abs | % | CI lower (%) | CI upper (%) |
|---|-----|--------|--------------|--------------|
| No offers | 390 | 52.70 | 48.57 | 55.78 |
| Carrying out sanitary and educational work among the population | 145 | 19.81 | 17.08 | 22.85 |
| Increased time per patient | 10 | 1.37 | 0.74 | 2.50 |
| Introduction to the family planning staff | 84 | 11.48 | 9.36 | 13.99 |
| Training of medical personnel on PC issues | 53 | 7.24 | 5.58 | 9.35 |
| Increasing the joint and several responsibility of the population for their health and the health of their children | 24 | 3.28 | 2.21 | 4.83 |
| Improving the quality of PC provision | 18 | 2.46 | 1.56 | 3.85 |
| Development of a clear algorithm for the provision of PC, amendments to the legislation | 12 | 1.64 | 0.94 | 2.84 |
| Financial incentives for medical personnel | 4 | 0.55 | 0.21 | 1.40 |
| TOTAL | 740 | 100.00 | | |

hypertension (but for this, it is necessary that the population themselves turn to this specialist, at present, this will not bring results), conduct training of medical personnel, which will improve the quality of PC provision.

Discussion

The results of our study confirm the authors' opinion that there is an unclear distribution of responsibilities among medical personnel in the provision of preconception training, that nursing staff feel incompetent in preparing for pregnancy, and that there are problems with the joint responsibility of the population [11], [14]. Due to the fact that in the Republic of Kazakhstan there is no clear algorithm for providing preconception training, it is difficult to compare the level of PC provision in other countries with our country, but the opinions of our respondents are similar to the conclusions of foreign colleagues about the need to distribute responsibility for PC between a few designated and trained professionals (in our study, most suggested it should be a family planning office specialist) who conduct the actual PC consultations, while all other relevant professionals act as guides [14], [17]. Most of the medical workers answered that they consider it their duty to conduct a conversation on PP (62.4%); however, there are specialists who conduct conversations only if the patient is interested on their own (13.2%) and a considerable proportion of those who do not conduct interviews at all (24.3%). The reasons also do not differ from the results of foreign colleagues – providing recommendations for PCC takes longer than a standard consultation [10], [12], lack of motivation (financial component) [18], some of the specialists experience a discrepancy between their willingness to provide PCC and their feeling that whether it's part of their job [15].

Based on the respondents' proposals for improving preconception training, we can recommend the inclusion of PC cycles in the postgraduate education curricula. Since the most visited doctor is a general practitioner (passing medical examinations, opening and closing sick leave, visits with children, etc.), the following topics should be discussed with each woman at the visit: Contraception, annual, and postnatal examinations by obstetrician-gynecologists and prevention of STIs [19], [20].

With regard to expanding the coverage of potential parents, it is necessary to distribute brochures, handouts, promotional materials, posters in waiting rooms among patients, and disseminate information through social networks by highly qualified specialists.

The strength of our study is the diversity of our study group. A large number of medical workers (n = 740) from various levels of medical organizations in the Karaganda region took part in our study, and

the opinions of specialists of various professions and qualifications improve the generalizability of the results among Kazakhstani medical workers. The study explored quantitative and qualitative data that provide a deeper understanding of the views of health-care professionals.

A potential limitation of this study is that we were not able to interview any of the family planning professionals, who might have differed opinions from the groups represented.

Conclusion

The health professionals who participated in our study agreed that the responsibility for raising prospective parents' awareness of PC was part of a multidisciplinary team, but that the family planning office specialist was the primary provider. Many respondents demonstrate a positive attitude toward PC, but note a number of barriers in the provision of PC – lack of knowledge and the need to integrate PC into curricula and advanced training courses, especially for non-midwives, the development of a clear algorithm for providing preconception training. The results of this study provide practical insight into the successful implementation of PC.

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References

1. World Health Organization. Born too Soon: The Global Action Report on Preterm Birth. Geneva: World Health Organization; 2012.
2. Steegers-Theunissen RP, Twigt J, Pestinger V, Sinclair KD. The periconceptional period, reproduction and long-term health of offspring: The importance of one-carbon metabolism. *Hum Reprod Update*. 2013;19(6):640-55. <https://doi.org/10.1093/humupd/dmt041> PMID:23959022
3. De Weerd S, Steegers EA. The past and present practices and continuing controversies of preconception care. *Community Genet*. 2002;5(1):50-60. <https://doi.org/10.1159/000064631> PMID:14960900
4. Maas VY, Poels M, Lamain-de Ruiten M, Kwee A, Bekker MN, Franx A, et al. Associations between periconceptional lifestyle behaviours and adverse pregnancy outcomes. *BMC Pregnancy Childbirth*. 2021;21(1):492. <https://doi.org/10.1186/s12884-021-03935-x>

- PMid:34233654
5. Temel S, van Voorst SF, Jack BW, Denktas S, Steegers EA. Evidence-based preconceptional lifestyle interventions. *Epidemiol Rev.* 2014;36:19-30.
PMid:11969350
 6. De Weerd S, van der Bij AK, Cikot RJ, Braspenning JC, Braat DD, Steegers EA. Preconception care: A screening tool for health assessment and risk detection. *Prev Med.* 2002;34(5):505-11. <https://doi.org/10.1006/pmed.2002.1009>
PMid:24234279
 7. Shannon GD, Alberg C, Nacul L, Pashayan N. Preconception healthcare delivery at a population level: Construction of public health models of preconception care. *Matern Child Health J.* 2013;18(6):1512-31. <https://doi.org/10.1007/s10995-013-1393-8>
PMid:24234279
 8. Order of the Minister of Health of the Republic of Kazakhstan Dated August 26, 2021 No. KR DSM-92. On Approval of the Standard for Organizing the Provision of Obstetric and Gynecological Care in the Republic of Kazakhstan; 2021.
 9. Tuomainen H, Cross-Bardell L, Bhoday M, Qureshi N, Kai J. Opportunities and challenges for enhancing preconception health in primary care: Qualitative study with women from ethnically diverse communities. *BMJ Open.* 2013;3(7):e002977. <https://doi.org/10.1136/bmjopen-2013-002977>
 10. Mazza D, Chapman A, Michie S. Barriers to the implementation of preconception care guidelines as perceived by general practitioners: A qualitative study. *BMC Health Serv Res.* 2013;13(1):36. <https://doi.org/10.1186/1472-6963-13-36>
PMid:23368720
 11. Van Voorst S, Plasschaert S, de Jong-Potjer L, Steegers E, Denktas S. Current practice of preconception care by primary caregivers in the Netherlands. *Eur J Contracept Reprod Health Care.* 2016;21(3):251-8. <https://doi.org/10.3109/13625187.2016.1154524>
PMid:27003266
 12. M'Hamdi HI, van Voorst SF, Pinxten W, Hilhorst MT, Steegers EA. Barriers in the uptake and delivery of preconception care: Exploring the views of care providers. *Matern Child Health J.* 2017;21(1):21-8. <https://doi.org/10.1007/s10995-016-2089-7>
PMid:27423236
 13. Poels M, Koster MP, Boeije HR, Franx A, van Stel HF. Why do women not use preconception care? A systematic review on barriers and facilitators obstet. *Gynecol Surv.* 2016;71(10):603-12. <https://doi.org/10.1097/OGX.0000000000000360>
PMid:27770130
 14. Poels M, Koster MP, Franx A, van Stel HF. Healthcare providers' views on the delivery of preconception care in a local community setting in the Netherlands. *BMC Health Serv Res.* 2017;17(1):92. <https://doi.org/10.1186/s12913-017-2051-4>
PMid:28137263
 15. Van Heesch PN, de Weerd S, Kotey S, Steegers EA. Dutch community midwives' views on preconception care. *Midwifery.* 2006;22(2):120-4. <https://doi.org/10.1016/j.midw.2005.06.003>
PMid:16126311
 16. Bureau of National Statistics of the Agency for strategic planning and reforms. Available from: <https://www.stat.gov.kz/region/256619/news/ESTAT438542> [Last accessed on 2022 Feb 20].
 17. Frayne DJ, Verbiest S, Chelmos D, Clarke H, Dunlop A, Hosmer J, *et al.* Health care system measures to advance preconception wellness: Consensus recommendations of the clinical workgroup of the national preconception health and health care initiative. *Obstet Gynecol.* 2016;127(5):863-72. <https://doi.org/10.1097/AOG.0000000000001379>
PMid:27054935
 18. Poels M, Koster MP, Franx A, van Stel HF. Parental perspectives on the awareness and delivery of preconception care. *BMC Pregnancy Childbirth.* 2017;17(1):324. <https://doi.org/10.1186/s12884-017-1531-1>
PMid:28950838
 19. Central Bureau for Statistics. Centraal Bureau voor de Statistiek (Central Bureau for Statistics) Ongeveer Drie Kwart Bezoekt Jaarlijks Huisarts En Tandarts (About Three Quarters Visit a General Practitioner and Dentist Every Year). Delhi: Central Bureau for Statistics; 2013. <https://www.cbs.nl/nl-nl/nieuws/2013/27/ongeveer-drie-kwart-bezoekt-jaarlijks-huisarts-en-tandarts> [Last accessed on 2022 Feb 20].
 20. Nypaver C, Arbour M, Niederegger E. Preconception care: Improving the health of women and families. *J Midwifery Womens Health.* 2016;61(3):356-64. <https://doi.org/10.1111/jmwh.12465>
PMid:27218593