

原著論文

Evaluation of the relationship between pregnant/postpartum women's characteristics and pharmacy use experience in terms of consultation needs with pharmacists

薬剤師への相談ニーズから見た妊産婦特性と薬局使用経験との関連性評価

Akito Ikeshita ^{#,a,b}, Atsunobu Sagara ^{#,a}, Takuya Azechi ^c,
Ayako Maeda-Minami ^d, Kayoko Sato ^a, Hidenori Kominato ^{a,b},
Kazuhiro Torigoe ^a, Motohiko Sano ^a, Masako Horiuchi ^a,
Fumiaki Sato ^a, Etsuko Arita ^e, Tetsuro Yumoto ^{*a}, and Masayoshi Koinuma ^f

[#]These authors contributed equally to this work.

池下 暁人^{#, a, b}、相良 篤信^{#, a}、畦地 拓哉^c、前田 絢子^d、里 香世子^a、小湊 英範^{a, b}、鳥越 一宏^a、
佐野 元彦^a、堀内 正子^a、里 史明^a、有田 悦子^e、湯本 哲郎^{*a}、濃沼 政美^f

Keyword : Consultation needs, pregnant/postpartum women's characteristics, pharmacy use experience, pharmacists

キーワード：相談ニーズ、妊産婦特性、薬局使用経験、薬剤師

Abstract : The Ministry of Health, Labor and Welfare, and professional associations have proposed the use of family pharmacies/pharmacists as part of the health and medical care system for pregnant/postpartum women. In this study, we clarified the consultation needs of pregnant/postpartum women with regard to the functions and capabilities of pharmacies/pharmacists, and examined the relationship with background information on pregnant/postpartum women (number of births, age at the time of the response, and status of pharmacy use). The counseling needs of pregnant/postpartum women were categorized into four clusters: general health care items, health products and over-the-counter medicines, prescription medicine, and general consultation. Additionally, each cluster was associated with three factors of maternal background information. Regardless of whether they are primipara or multipara, those who are relatively young in age group tend to 1) mainly consult with the attending obstetrician they are visiting, 2) their consultation needs with pharmacists are in the area of self-care and self-medication, 3) according to their childbirth experience, they Priority tends to shift from health products and over-the-counter medicines to general health care items. On the other hand, we concluded that those who are relatively older tend to 1) consolidate their use of multiple pharmacies to some extent to their family pharmacies in accordance with their experience of childbirth, and 2) shift their consultation needs from general consultation to prescription medicines. It was thought that these results are significant for pharmacies/pharmacists to practice a response that takes into account the characteristics of each pregnant/postpartum woman.

要旨：厚生労働省等は、妊産婦に対する保健・医療体制の一つとして、かかりつけ薬局・薬剤師の活用を提言している。本研究では、薬局・薬剤師の機能・職能に対する妊産婦の相談ニーズを明らかとし、妊産婦の背景情報（出産回数、回答時の年齢、薬局の使用状況）との関連性も検討した。妊産婦の相談ニーズは、【健康管理項目一般】、【健康食品・一般用医薬品】、【医療用医薬品】、【全般的な相談】という4つのクラスターに分類され、各クラスターは、妊産婦の背景情報3因子で関連付けられた。初産婦・経産婦に関係なく、比較的年齢層が若い者は、1) 受診中の産科が主体となり、2) 薬剤師への相談ニーズは、セルフケア・セルフメディケーションの領域であり、3) 出産経験に準じて健康食品・一般用医薬品から健康管理項目一般へと優先順位がシフトする傾向があった。一方、比較的年齢層が高い者は、1) 出産経験に準じて複数の薬局使用からある程度かかりつけ薬局に使用が集約され、2) 相談ニーズも全般的な相談から医療用医薬品へシフトされる傾向があった。本結果は、薬局・薬剤師が各妊産婦の特性を考慮した応対を実践する上で意義あるものと考えられる。

-
- a Hoshi University
 - b I&H Co., Ltd.
 - c Department of Pharmacy, Juntendo University Hospital
 - d Faculty of Pharmaceutical Sciences, Tokyo University of Science
 - e Kitasato University School of Pharmacy
 - f Faculty of Pharmaceutical Sciences, Teikyo University of Science

*Corresponding Author : Tetsuro Yumoto, 2-4-41 Ebara, Shinagawa-ku, Tokyo 142-8501, JAPAN
Tel: +81-3-5498-5840 Fax: +81-3-5498-5840 e-mail: t-yumoto@hoshi.ac.jp

- 所属 : a 星薬科大学
b I & H株式会社
c 順天堂大学医学部附属順天堂医院薬剤部
d 東京理科大学薬学部
e 北里大学薬学部
f 帝京平成大学薬学部
-

1. Introduction

The Ministry of Health, Labor and Welfare and professional associations related to pharmacists have proposed the active use of family pharmacies/pharmacists as part of the health and medical care system to enable pregnant/postpartum women to safely bear and raise their children in the community.^{1, 2)} In some areas, family pharmacies/pharmacists are practicing support for pregnant/postpartum women in collaboration with the government and medical institutions, and an overview of this has been previously reported.^{3, 4)} However, although supporting pregnant/postpartum women by pharmacies/pharmacists is essentially a standard function, it has yet to be fully implemented in society. Also, the recognition among pregnant/postpartum women regarding support pregnant/postpartum women by pharmacies/pharmacists is low.⁵⁾

Under these circumstances, we considered it essential to clarify issues and needs from the subjective and

psychological aspects of pregnant/postpartum women about the functions and capabilities of pharmacies/pharmacists to construct and propose a new type of support for pregnant/postpartum women.⁶⁾ In addition, with the primary purpose of problem identification, we investigated and analyzed the ease of psychological communication (hereafter referred to as “ease of psychological access”) with pharmacists when they feel anxious about using health products and medicines. The results revealed that pharmacists are rated at a certain level among diverse sources of information, while pharmacists had relatively less ease of psychological access when focusing on medical professionals. We also revealed that approximately 10% of the women did not intend to self-report their pregnant/postpartum status at all or unless asked for pharmacy pharmacists.⁶⁾

In this study, we focused on the above-mentioned needs and clarified the items that pregnant/postpartum women specifically want to consult with pharmacies and pharmacists (hereinafter

referred to as “consultation needs”) and analyzed the association between the background information of pregnant/postpartum women (number of births, age at the time of the response, and status of pharmacy use) and their consultation needs.

2. Methods

2.1. Survey targets and ethical considerations

From February 25th–26th, 2020, preliminary online surveys were distributed to 50,000 registered investigation firm randomized monitors (Macromill, Inc., Tokyo, Japan) of women in their teens to those in their forties across Japan. The data provided by 1,030 women who were eight months pregnant to <1 year postpartum (at the time of the survey) were extracted. The monitors of the investigation firm had been publicly recruited, and the total number of monitors as of February 2020 was approximately 1.28 million. To prevent any falsified responses, a trapping survey was conducted every six months, and monitors were required to update necessary registered information every year. The study was conducted by following the ethical guidelines for human-based medical research. It was approved by the Institutional Review Board of Hoshi University (2019-13) and the Institutional Review Board of HANSHIN Dispensing Pharmacy (19009S). The survey response indicated consent to participate in the study.

2.2. Analysis methods

2.2.1 *Simple tabulation of items that expectant mothers like to consult with pharmacies and pharmacists*

The responses of pregnant/postpartum women to the survey question, “What specifically would you like to consult with a pharmacist during pregnancy,” were tabulated. The questions consisted of nine items at two levels (yes/no), the contents of which are presented as follows: a) symptoms and timing to see a hospital, b) health products, c) over-the-counter medicines (internal use), d) over-the-counter medicines (external use), e) prescription medicines (internal use), f) prescription medicines (external use), g) diet and nutrition, h) immunizations, and i) dental and oral health care.

2.2.2 *Clustering of items that pregnant/postpartum women like to discuss with pharmacies and pharmacists*

Cluster analysis using the agglomerative hierarchical clustering method was conducted using the nine survey questions mentioned in section 2.2.1. The number of clusters was adopted as a clinically valid number with reference to the cube cluster criterion. Each cluster was named to reflect the characteristics of the cluster based on the structure of the top items (about 3 items) or the items as a whole.

2.2.3 *Evaluation of the relationship between background information on pregnant/postpartum women and their need for consultation with pharmacists.*

2.2.3.1 Background information on pregnant women (number of births, age at the time of response, and experience using pharmacies)

The number of births was categorized into two levels: primipara and multipara. The age at the time of response was classified into three levels based on Jenks' categorical classification, and a composite variable of these variables was created. The experience of using a pharmacy during the most recent pregnancy was categorized into four levels: family pharmacy, family pharmacy and other pharmacies, other pharmacies, and obstetrics consultation only (no pharmacy use).

2.2.3.2 Evaluation of the relationship between maternal background information and consultation with pharmacies and pharmacists

Multiple Correspondence Analysis (MCA) was conducted using the clusters created in section 2.2.2 and the maternal

background information data in section 2.2.3.1. The background information of pregnant/postpartum women was analyzed using a composite variable of the number of births and age at the time of response, plus the experience of using a pharmacy. JMP Pro 16.2 (SAS Institute, Cary, NC, USA) was used for data analysis regarding the sections 2.2.1 to 2.2.3.

3. Results

3.1 Simple tabulation of items that pregnant/postpartum women like to consult with pharmacists

The top five items accounted for over-the-counter medicines (internal use; 52.5%), prescription medicines (internal use; 51.9%), over-the-counter medicines (external use; 36.4%), health products (32.2%), and prescription medicines (external use; 31.9%) (Figure 1).

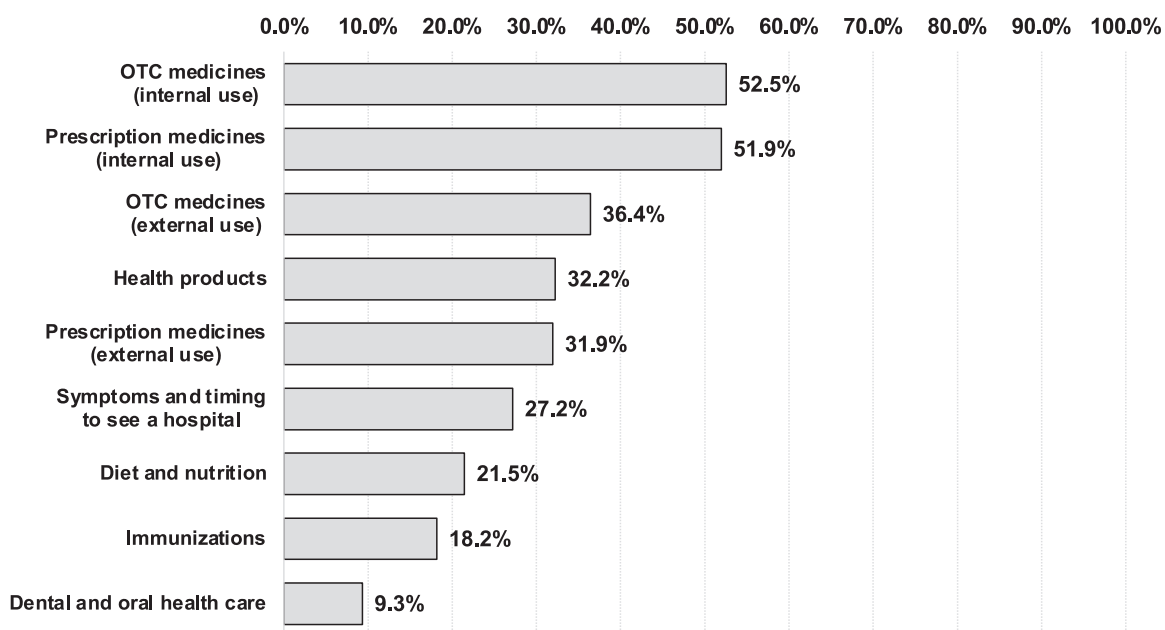


Figure 1: List of items pregnant/postpartum women would like to consult with pharmacists during pregnancy.

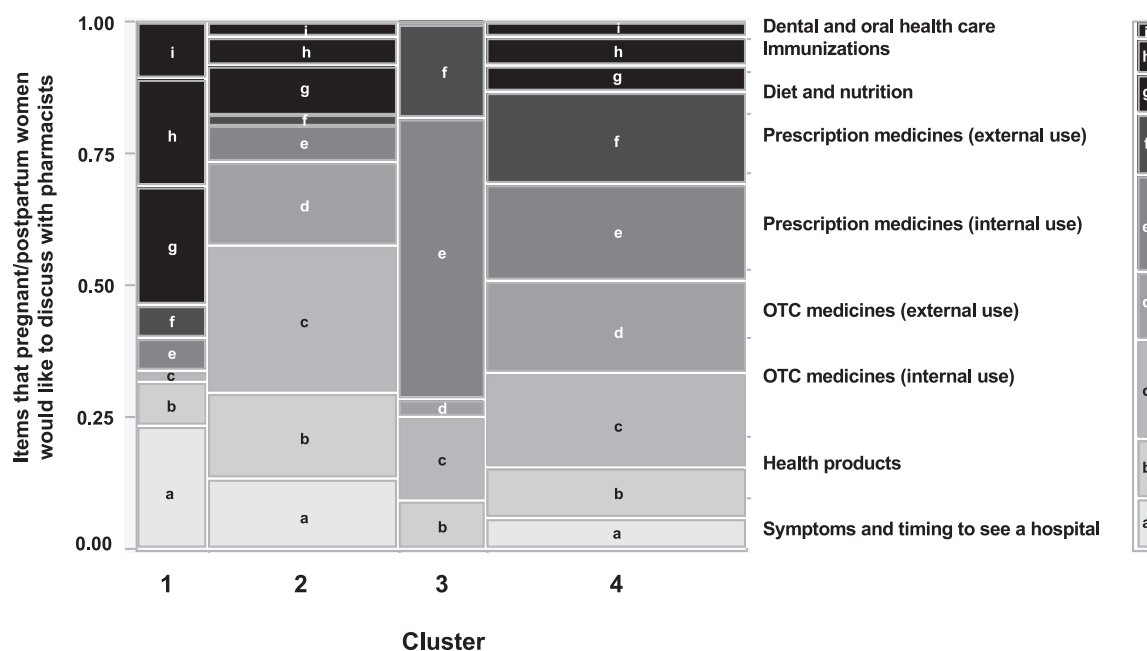


Figure 2: The clustering of items that pregnant/postpartum women would like to discuss with pharmacists. Cluster 1 as general health care items, cluster 2 as health products and over-the-counter medicines, cluster 3 as prescription medicines, and cluster 4 as general consultation were named.

3.2 Clustering of items that pregnant/postpartum women like to discuss with pharmacists

The characteristics of pregnant/postpartum women were structured by cluster analysis based on their consultation needs with pharmacists and were classified into four clusters (Figure 2). After examining the characteristics of each cluster, we were able to name cluster 1 as general health care items, cluster 2 as health products and over-the-counter medicines, cluster 3 as prescription medicines, and cluster 4 as general consultation.

3.3 Evaluation of the relationship between maternal background information and the need for consultation with pharmacies and pharmacists

The relationship between two factors of

maternal background information (number of births, age at the time of response) and four clusters was examined using MCA. As shown in Figure 3, the higher the value for dimension one, the higher the age at time of response, and the higher the value for dimension two, the more likely the women were multipara. Among primipara, cluster 2 (health products and over-the-counter medicines) was found to be associated with primipara under 28 years of age, cluster 4 (general consultation) with primipara over 33 years of age, and cluster 1 (general health care items) with multipara under 28 years of age and cluster 3 (prescription medicines) with multipara over 28 years of age (Figure 3).

The relationship between the three factors of maternal background information (number of births, age at the time of response, and experience using a pharmacy) and four clusters was examined

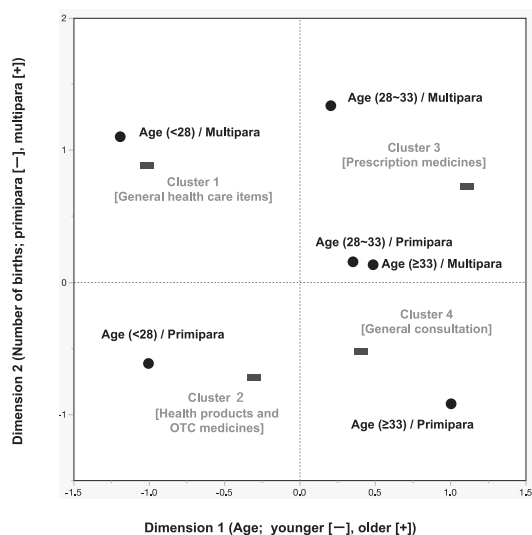


Figure 3: The relationship between two factors of maternal background information (number of births and age at the time of response) and four clusters.

using MCA. As shown in Figure 4, the higher the value for dimension one, the higher the age at the response, and the higher the value for dimension two, the more likely the multipara. Among primipara, women under 28 years of age had not used a pharmacy, which clearly related to cluster 2 (health products and over-the-counter medicines). The women who were 28 years old or older had experience using a family pharmacy or other pharmacies, which was clearly associated with cluster 4 (general consultation). Among multipara, women under 28 years of age had no experience using a pharmacy, which was clearly associated with cluster 1 (general health care items). The 28-year-old or older women had an experience using a family pharmacy and showed an association with cluster 3 (prescription medicines).

4. Discussion

In building a comprehensive community

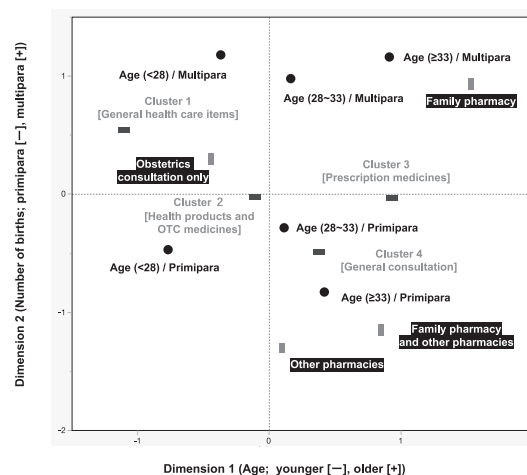


Figure 4: The relationship between three factors of maternal background information (number of births, age at the time of response, and experience using a pharmacy) and the four clusters.

support system to support pregnant/postpartum women, the functions and capabilities of pharmacies/pharmacists are required more than ever before, however, there has not been sufficient research on the needs of social pharmacy in this area. The analysis in this study focused on the consultation needs of pregnant/postpartum women to pharmacies/pharmacists. As a result, it was found that the counseling needs of pregnant/postpartum women were statistically classified into four clusters: general health care items, health products and over-the-counter medicines, prescription medicines, and general counseling. In addition, each cluster was associated with three factors: number of births, age at the time of response, and experience using pharmacies, which are background information of pregnant/postpartum women. The following is a discussion of maternal characteristics based on the findings obtained.

Those in the relatively young age group

of primipara and under 28 years of age are generally considered less likely to have underlying medical conditions.⁷⁾ Therefore, it was thought that attending obstetricians (no experience with pharmacy use) were listed as medical institutions/facilities they had used during pregnancy and that their consultation needs with pharmacists were also for health products and over-the-counter medicines related to self-care and self-medication before and after pregnancy. On the other hand, the phenomenon of women's marriage and childbearing ages becoming higher is occurring against the backdrop of women's increased social advancements.^{8,9)} Therefore, it was thought that primipara and those in relatively older age groups used both their family pharmacies and other pharmacies for general consultation due to a variety of health and childbirth-related concerns caused by a history of underlying medical conditions and advancing age.

The relatively young age group of multipara and those under 28 years of age were thought to use the same obstetrician they were seeing (no prior pharmacy use) due to the same health background as primipara, and the same self-care and self-medication areas were also identified as their counseling needs. The reason why the needs for consultation with pharmacists were health management items such as the timing of medical examinations, vaccinations, and diet/nutrition in the same area was thought to be that the top items for consultation needs (health products and over-the-counter medicines) were resolved through the first birth experience, and interest and concern shifted according to

priority. On the other hand, the relatively older age group of multipara was associated with experience in using a family pharmacy and the need for consultation on prescription medicines, which may explain why they had more opportunities to require medical visits, i.e., increased drug use, compared to primipara.

Based on the above, the characteristics of pregnant/postpartum women can be summarized based on their consultation needs with pharmacies/pharmacists and their background of pregnant/postpartum women. Regardless of whether they are primipara or multipara, those who are relatively young in age group tend to 1) mainly consult with the attending obstetrician they are visiting, 2) their consultation needs with pharmacists are in the area of self-care and self-medication, 3) according to their childbirth experience, and they Priority tends to shift from health products and over-the-counter medicines to general health care items. On the other hand, we concluded that those who are relatively older tend to 1) consolidate their use of multiple pharmacies to some extent to their family pharmacies in accordance with their experience of childbirth, and 2) shift their consultation needs from general consultation to prescription medicines.

Traditionally, the proportion of pregnant/postpartum women among store visitors who consult with pharmacists has been low, making it difficult for pharmacists to gain experience in supporting pregnant/postpartum women. We believe that the findings of this study are significant for pharmacies/pharmacists with diverse work styles in promoting support for pregnant/

postpartum women in the future, in terms of appropriate counseling and response that takes into account the characteristics of each pregnant/postpartum women, and in setting goals for their own lifelong study. One limitation of this study is that we did not include a question on underlying medical conditions due to privacy and the burden on respondents due to the number of questions asked.

The results of this analysis provided useful insights into the counseling needs of pregnant/postpartum women, particularly in relation to the number of births, age at the time of response, and use of pharmacies, and we would like to conduct future surveys and analyses based on underlying diseases to further explore their needs.

Reference

- 1) "Review Meeting of Ideal Health and Medical System for Pregnant/Postpartum Woman": https://www.mhlw.go.jp/stf/shingi/other-hoken_553056_00007.html, Accessed 1 October, 2022.
- 2) "Vision of Pharmacies for Patients": <https://www.mhlw.go.jp/stf/houdou/0000102179.html>, Accessed 1 October, 2022.
- 3) "Aichi Pharmaceutical Association": https://www.apha.jp/medicine_info/entry-22.html, Accessed 1 October, 2022.
- 4) "Pharmacists' involvement with pregnant/postpartum woman": <https://www.mhlw.go.jp/content/12401000/000488886.pdf>, Accessed 1 October, 2022.
- 5) Takagi K, Onda M, Iwaki A, Nishikawa N, Arakawa Y: A Survey on the Attitudes of Pregnant and Lactating Women about the Use of Drugs. *YAKUGAKU ZASSHI*, 130, 1381-1385 [2010].
- 6) Ikeshita A, Sagara A, Azechi T, Maeda-Minami A, Sato K, Koinuma M, Kominato H, Torigoe K, Sano M, Horiuchi M, Sato F, Arita E, Yumoto T: Survey of pregnant/postpartum women's ease of consultation with pharmacists and self-reporting their pregnant/postpartum status. *Journal of the Pharmaceutical Communication Society of Japan*, 20, 16-29 [2022].
- 7) "Annual Report on Health, Labour and Welfare": <https://www.mhlw.go.jp/stf/wp/hakusyo/kousei/18/backdata/01-01-02-08.html>, Accessed 1 October, 2022.
- 8) Suzuki Y, Shikama K, Kosaka N: Relationship between "child-rearing and nursing care" and female social advancement among female university students. *Journal of Living and Welfare Kyoto Women's University*, 14, 51-57 [2019].
- 9) "Demographic Transformation in Japan": <https://www.mhlw.go.jp/toukei/saikin/hw/jinkou/geppo/nengai20/dl/h3-4.pdf>, Accessed 1 October, 2022.