

An evaluation project: use and function of Embryotox.de in routine healthcare

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Project background

Since 2008, the open-access internet portal embryotox.de provides evidence-based information on drug safety during pregnancy and breastfeeding. The website comprises factsheets about 400 drugs and is maintained by the Embryotox Center of Clinical Teratology and Drug Safety in Pregnancy at the Charité – Universitätsmedizin Berlin.

In 2024, it was accessed more than five million times.

Objective

This mixed-methods study aimed to evaluate

- who is using the website,
- how it is being used,
- and to what extent it meets users' needs.

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Methods

Data collection within separate work packages was carried out in 2022 and 2023. Two quantitative online questionnaires were placed on drug fact sheets on embryotox.de for 7 months each. The online questionnaire 1 was placed on all drug factsheets; online questionnaire 2 was placed on factsheets for prescription-only drugs that typically require shared decision-making.

- **Online questionnaire 1 contained questions on user characteristics**, clinical specifics of use, comprehensibility and changes of risk assessment or drug therapy following factsheet use. Answers included multiple choice options or ratings on a Likert Scale from 0 (not at all) to 10 (completely).
- **Online questionnaire 2 collected data on decision-making based on Embryotox factsheets**. Answers included multiple choice options or ratings on a Likert Scale. Data from both questionnaires were analyzed using descriptive statistics.
- Furthermore, we engaged in a **direct dialogue with different user groups**. Semi-structured interviews and a focus group discussion were conducted for this purpose. Kuckartz's content analysis was employed to analyze qualitative data on users' trust and the functions of website use for different stakeholder groups.

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Selected results - Questionnaire 1 (n=14,562)

User characteristics

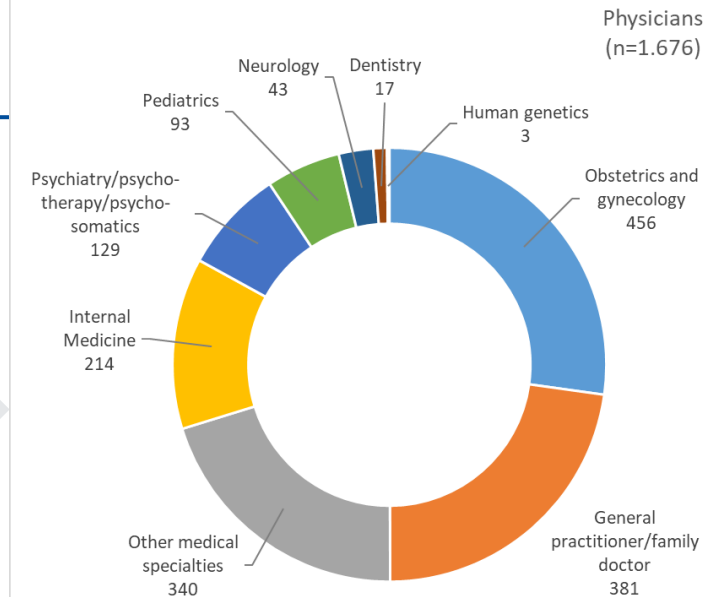
- Physicians: n = 1,676 (specialist areas see Figure), pharmacists: n = 550, midwives: n = 364, others: n = 1,112
- Patients: n = 10,860, of whom n = 6,319 (58.2%) had a university degree

Use of drug information

- e.g. in clinics, doctors' and midwives' practices, public and hospital pharmacies, and for self-medication
- around the clock (33.2% after 8 p.m. and before 8 a.m.) and also at weekends (> 20%)

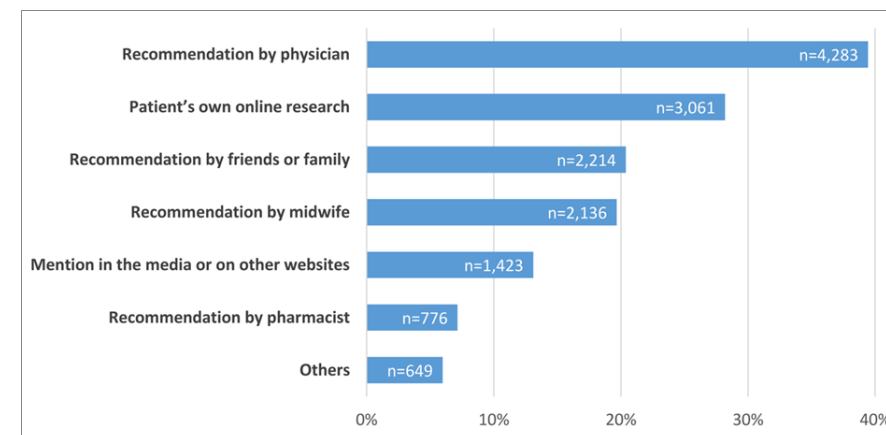
Comprehensibility of drug information

- mean value > 9 for professionals, 8.8 for patients (Likert scale 0: 'not at all' to 10: 'completely')



How patients (n=10,860) became aware of embryotox.de.

Multiple answers possible.



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Selected results - Questionnaire 2 (n=793)

➤ Data primarily on the use and function of embryotox.de

User characteristics (n=793)	%
Physicians (n=382)	48.2
Patients (n=267)	33.7
Pharmacists (n=79)	10.0
Midwives (n=65)	8.2

Doctors used embryotox.de for the following purposes

- Searching for current information,
- Facilitating decision-making with patients,
- Reassuring anxious patients,
- Improving adherence and treatment success.

Patients used embryotox.de as a source of information and reassurance, but often also to support decision-making,

- e.g. to prepare for the consultation with their doctor and to ask relevant questions that are important to them
- to 'convince' doctors, if necessary, that taking a certain medication was compatible with pregnancy or breastfeeding, or that alternatives should be preferred.

Selected results - interviews (n=41) and focus group (n=1)

➤ to generate qualitative data

In all four interview groups (n = 14 doctors, n = 9 midwives, n = 9 pharmacists, n = 9 patients):

- High satisfaction with the use of the website
- High level of trust in the assessments and clinical recommendations

Conclusion

This mixed-methods study demonstrated that the open-access website embryotox.de is successfully used by a wide range of stakeholders in routine healthcare. Overall, there was a high level of satisfaction with the internet portal and the information was perceived as trustworthy. Further improvements could be achieved by increasing the number of available drug factsheets and by making the online information easier to understand for less educated patients.