Threats to Pediatric Nurses’ Perception of Caring Self-efficacy: A Qualitative Study

Azam Alavi,1 Masoud Bahrami,1,2 Ali Zargham-Boroujeni,1 and Alireza Yousefy3

1Faculty of Nursing and Midwifery, Shahrekord Branch, Islamic Azad University, Shahrekord, IR Iran
2Nursing and Midwifery Care Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, IR Iran
3Medical Education Research Center, Isfahan University of Medical Sciences, Isfahan, IR Iran

*Corresponding Author: Masoud Bahrami, Nursing and Midwifery Care Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, IR Iran. Tel: +98-910343825, Fax: +98-36699398, E-mail: bahrami@nm.mui.ac.ir

Received 2014 November 29; Revised 2014 December 16; Accepted 2015 January 4.

Abstract

Background: Nurses are considered the largest and most important human resource for healthcare organizations. Self-efficacy as the main predictor of nurses’ behavior plays an important role in nurses’ professional behavior. However, the various dimensions and threats of caring self-efficacy concept have not been taken into consideration.

Objectives: The present paper attempts to identify threats to self-efficacy as an important aspect of the concept of pediatric nurses’ caring self-efficacy.

Materials and Methods: This study is part of a larger study on the caring self-efficacy concept that was conducted through content analysis and from a qualitative approach in 2014 in Iran. Twenty-seven nurses and pediatric clinical instructors participated in this research according to the purposive sampling method employed in the study. Data were collected through semi-structured interviews. The collected data were analyzed using the conventional content analysis method.

Results: “Threats to self-efficacy” was one of the main themes extracted from the interview analysis results in the present study. The theme consists of two main categories “individual barriers,” including not having a caring attitude and not being interested in children, and “organizational barriers,” including an inefficient educational system, not developing professional capabilities, non-valuation of the organization in a caring context, a poor rewards system, and inappropriate managerial policies.

Conclusions: Nursing management and custodians of nursing trainings can break through the barriers to self-efficacy by knowing these factors and making changes in the educational programs and providing supporting policies. This can be an important step toward improving nurses’ inefficacy and ultimately improving the provision of quality healthcare services.

Keywords: Self-Efficacy, Pediatric Nursing, Qualitative Research

1. Background

The most important asset of an organization is its human resources. Nurses, as the most significant and largest human resource of healthcare organizations, play a vital role in improving the social health of a community, such that no healthcare organizations can achieve any success without having efficient nurses (1). Considering the annual estimation of 1.8 million hospitalized children, it seems necessary to determine the efficiency of hospital resources for taking care of these children (2).

Self-efficacy is expected to be the most influential factor affecting nurses’ performance. High self-efficacy increases the quality of care services provided and ultimately improves individual and organizational performance (3-5). Self-efficacy is one of the applied concepts in Bandura’s social cognitive learning theory on professional behavior. Self-efficacy reflects an individual’s beliefs with regard to his or her capabilities to perform specific behaviors leading to certain outcomes. Bandura introduced a new approach to human behavior in which individuals’ trust is a key element in their control and action (6, 7). Self-efficacy is a personal, situational, and context-dependent issue. Professional self-efficacy deals with specific behaviors and performance, such as academic or professional success (8). Self-efficacy is introduced as the main predictor of nurses’ behavior and plays an important role in nurses’ professional behavior (9, 10). It resembles a structure affecting one’s motivation, learning, skill development, and professional progress. High self-efficacy leads to the affective utilization of cognitive, meta cognitive, and other performances in many areas (11). Nursing studies indicate that self-efficacy and the acquisition of clinical skills are correlated and an increase in self-efficacy reduces the gap between theory and practice (12). They also indicate that self-efficacy not only affects nurses’ caring capabilities, but also prevents many clinical errors (13).

Human and thought assets are of prime importance in
today’s world. Individuals identify their capabilities by with Knowing more aspects of capabilities and abilities are considered a great help by overcoming psychological pressures to meet individual and organizational objectives. Thus, knowing concepts such as nurses’ self-efficacy and threatening factors, particularly in the realm of pediatric care, which is one of the most vulnerable parts of the healthcare system, is necessary.

2. Objectives
Considering the fact that self-efficacy is a personal and context-based issue (7), this research was conducted to introduce threats to the caring self-efficacy concept from pediatric nurses’ viewpoint so that appropriate plans can be designed to improve pediatric nurses’ self-efficacy and the quality of pediatric care.

3. Materials and Methods
This paper is part of a nursing doctorate thesis conducted in 2014 in Iran to clarify the caring self-efficacy concept among pediatric nurses. The study was conducted using qualitative content analysis. Considering the significance of a detailed review of individuals’ experiences, 27 pediatric nurses and clinical directors of Isfahan Hospital and clinical nursing professors on the pediatric faculty of the Nursing and Midwifery College of Isfahan were selected through purposive sampling.

The inclusion criteria were having a BS or a higher degree in nursing, having at least one year of clinical experience, and a willingness to share one’s experience. Data were collected through semi-structured interviews with individuals. The interviews commenced by the interviewer introducing himself/herself and a short description on the objectives of the study. Interviews lasted from 28 to 60 minutes and were conducted in a peaceful place chosen by the participants. The interviews were transcribed verbatim. As an in-depth analysis is required in such qualitative research projects, the researcher listened to the interviews several times and reviewed the transcripts word by word and line by line to select the unit of analysis, determine the important sentences and phrases as meaning units, and condense sentences and phrases as condensed meaning units to extract the words containing the key concepts or units of meaning. The researcher labeled condensed meaning units as codes and extracted the primary codes from statements made by the interviewees and participants. Then the codes were reviewed in a continuous process from the extraction to naming step. Then, similar codes were merged and categorized. Then based on the ideas contained in the categories, the naming and subcategories emerged. The extracted subcategories were compared with one another. In cases of similarity, they were merged if possible. The main themes were revealed ultimately (14, 15).

To ensure data accuracy, the researcher utilized long and in-depth engagement with the data. In addition, to increase the reliability of the study, adequate time was dedicated by the researcher to provide information to participants, maintaining contact with participants to gain their trust, reviewing the data continuously, reviewing the extracted codes with some of the participants, peer-reviewing the findings, and using their views for amendments. Interviews and coding were conducted by the first researcher, and two expert professors of qualitative research supervised and audited the entire research procedure. The utilization of several data collection methods and the consideration of maximal variation (with regard to age, work experience, different social and economic status) in the selection of participants made data transferability possible. The immediate transcription of interviews and direct interviews were determined by the participants. The raw data, including the interviews, are stored in a safe place accessible only to the research team.

4. Results
There were 27 participants, including 19 pediatric nurses, 4 pediatric headnurses, 1 supervisor, and 3 pediatric nursing instructors between 27 and 49 years old and with work experience ranging from 3 to 25 years. Twenty-five of the participants were female and the rest were male; 21 had a BS degree, 5 had an MS degree, and 1 had a PhD degree in nursing (demographic properties are presented in Table 1). The “Threats to Self-Efficacy” theme was one of the main extracted themes in the recent study, which was comprised of two main categories: “Individual Barriers” and “Organizational Barriers.” (These categories and subcategories are presented in Table 2.)

4.1. Individual Barriers
4.1.1. Not Having a Caring Attitude
From the participants’ viewpoint, not having a caring attitude was the main contributor to how self-efficacy is perceived and how the profession is liked. Most of the nurses do not maintain a caring attitude toward their
profession. Participant 8 stated, “I think nurses should be aware of the value of their profession and caring. Caring for children is of higher value than caring for adults. It sometimes gets difficult; there are lots of pressures, but a mother’s prayer or child’s smile makes us forget all these difficulties and pressures. It is sweet to us and gives us the good feeling that we have done something positive for the kid. I trust myself more when I am aware of the value of my profession.”

Participant 15 said, “A self-efficient pediatric nurse would work with great passion, love, and enthusiasm. There is no sense of obligation in this work. The nurse would take care of the children without any pressure.”

4.1.2. Not Being Interested in Children

Participants mentioned that liking children would cause nurses to make a greater attempt in taking care of children. Participant 4 stated, “Some colleagues mention that they hate the pediatric ward. They hate children crying and shrieking. This affects nurses’ self-efficacy negatively. Caring for children requires love and enthusiasm. If you love them, you act like it, you look at them, and you care for them in time, and you enjoy all these things.”

Participant 17 mentioned, “I think the nurses who love children and care for them have greater self-confidence due to the fact that dealing with kids takes a special person. It involves more stress than other wards. The caring required for kids are more sensitive and intensive than general caring.”

4.2. Organizational Barriers

The analysis of interviews revealed that an inefficient educational and professional system can serve as a threat to nurses’ self-efficacy. This category is comprised of 5 subcategories, including “inefficient educational system,” “not developing professional capabilities,” “not valuating the organization in the concept of caring,” “poor rewards system,” and “inappropriate managerial strategies.”

4.2.1. Inefficient Educational System

According to nurses, their self-efficacy begins when they attend a university. However, the participants mentioned that nurses’ performance and students’ experience during their clinical training, due to the specific conditions and sensitivity of pediatric wards, were not highly efficient and the gap between theory and practice is wider in pediatric wards. This is detrimental to nurses’ perception of their self-efficacy when they start their profession in a pediatric ward. This was confirmed by participant 4 (a nurse), stating that, “A pediatric ward is of greater sensitivity; drug doses and vein finding are important. No proper training is usually offered to nurses in this regard. Nurse can perform their duties in adult wards with more ease, but pediatric wards are of supreme sensitivity. As personnel are aware of such sensitivity, they don’t delegate such tasks to nurses; that’s why nurses in pediatric wards have less practice and experience, which leads to a lower level of self-confidence.”

Participant 1 (an instructor) mentioned that, “If we procure enough facilities for nurses so they can experience different scenarios and acquire more skills during their education, they will then achieve a higher level of self-efficacy. The educational system should provide more facilities for the rare cases and caring of the diseases with low incidence, so the nurses can experiment in simulated conditions and thus gain experience. Their knowledge should not remain at the theoretical and book level. If students gain enough experience during their education, they will have greater self-efficacy.”

4.2.2. Not Developing Professional Capabilities

This category refers to opportunities that need to be created by managers to improve nurses’ knowledge and skills in specialized pediatric care, leading to nurses’ professional development and growth and enhanced confidence in their positive role. However, the few training courses provided have mainly been theoretical. Participant 1 stated, “The science is progressing day by day. It may be necessary to have more effective training courses and re-instructions. Our nurses need to be seriously re-instructed. No mere theoretical classes are needed. The personnel are mainly geared toward garnering scores for the end of June rather than learning practical knowledge.”

Participant 24 said, “For self-efficacy, there must be no distance between clinical practice and instruction. That is, there must always be re-instructions. Nurses must try to take part in classes and re-instructive courses to improve their skills and self-efficacy such that no other child is hurt.”

4.2.3. Not Valuating the Organization in the Concept of Caring

Nurses’ statements indicated that an organizational respect for nurses’ caring profession, particularly from doctors’ point of view, and acknowledging them as members of the treatment team, is one the most significant issues affecting nurses’ self-efficacy. Participant 22 mentioned, “A nurse will feel satisfied, self-confident, and pleased if she is viewed as an effective member of the treatment team. She will not feel any failure or void then. I believe our nurses should be acknowledged, respected, and valued. As a simple example, we write down our nursing reports, but who has even read them?”

Confirming the above statement, participant 18 mentioned, “I feel our colleagues are also involved. If the doctor believes in nurses’ ideas and performance, then the nurses would trust themselves more than before. Now that there are educational levels such as residency, such cases are rare.”
4.2.4. Poor Rewards System

This category indicates that factors such as supporting and offering verbal or non-verbal acknowledgements would motivate nurses and make them feel valued. Participant 23 stated, “Our work is not usually acknowledged, and we are not usually thanked for what we do. That is why I may not have many good experiences and memories, which affects my self-efficacy greatly.”

Participant 25 stated, “Encouragement has waned a lot nowadays. The good deeds are not noticed, and the bad ones stand out instantly. There must be motivation to encourage personnel. It would be of great help, at least in the first few working years.”

Participant 11 stated, “I think encouragement plays a significant role. Encouragement is not necessarily material or monetary. A verbal encouragement, or even a distinction between efficient and inefficient nurses, would suffice. This would be a pivotal point for the continuation, or even improvement, of nurses’ self-efficacy.”

4.2.5. Inappropriate Managerial Strategies

Participants maintained that the clinical directors impeded nurses’ realization of their self-efficacy by employing inappropriate managerial strategies. Participant 10 mentioned, “Hospital policies are very effective in the level of freedom allotted to nurses. Unfortunately, hospital policies do not specify clear plans for the nurses for their evaluation. In most of the hospitals I have seen that nothing else happens. The nurse has a certain working zone. Some paperwork is also involved, which takes up some of the nurses’ time. The nurse has no time to be free and show her efficiency and creativity. Nurses are scarcely employed in executive affairs.”

Table 1. Participants’ Demographics

| Number of Participants | Age  | Years of Work Experience | Education | Occupation               |
|------------------------|------|--------------------------|-----------|--------------------------|
| P1                     | 42   | 11                       | Msc of nursing | Pediatric nursing instructor |
| P2                     | 30   | 3                        | Msc of nursing | Pediatric nurse           |
| P3                     | 45   | 13                       | Bsc of nursing | Pediatric headnurse        |
| P4                     | 47   | 20                       | Bsc of nursing | Pediatric headnurse        |
| P5                     | 47   | 13                       | Bsc of nursing | Pediatric headnurse        |
| P6                     | 42   | 18                       | PhD of nursing | Pediatric nursing instructors |
| P7                     | 35   | 8                        | Msc of nursing | Pediatric nurse           |
| P8                     | 30   | 3                        | Bsc of nursing | Pediatric nurse           |
| P9                     | 35   | 3                        | Bsc of nursing | Pediatric nurse           |
| P10                    | 32   | 8                        | Msc of nursing | Pediatric nurse           |
| P11                    | 32   | 7                        | Bsc of nursing | Pediatric nurse           |
| P12                    | 36   | 13                       | Bsc of nursing | Pediatric nurse           |
| P13                    | 29   | 6                        | Bsc of nursing | Pediatric nurse           |
| P14                    | 45   | 23                       | Bsc of nursing | Pediatric nurse           |
| P15                    | 32   | 14                       | Bsc of nursing | Pediatric nurse           |
| P16                    | 28   | 5                        | Bsc of nursing | Pediatric nurse           |
| P17                    | 36   | 6                        | Bsc of nursing | Pediatric nurse           |
| P18                    | 39   | 10                       | Bsc of nursing | Pediatric nurse           |
| P19                    | 27   | 3                        | Bsc of nursing | Pediatric nurse           |
| P20                    | 27   | 5                        | Bsc of nursing | Pediatric nurse           |
| P21                    | 27   | 5                        | Bsc of nursing | Pediatric nurse           |
| P22                    | 49   | 25                       | Msc of nursing | Pediatric nursing instructor |
| P23                    | 40   | 11                       | Bsc of nursing | Pediatric headnurse        |
| P24                    | 38   | 15                       | Bsc of nursing | Supervisor                |
| P25                    | 47   | 24                       | Bsc of nursing | Pediatric nurse           |
| P26                    | 28   | 5                        | Bsc of nursing | Pediatric nurse           |
| P27                    | 29   | 4                        | Bsc of nursing | Pediatric nurse           |
sense of self-efficacy (19, 20). Considering the progress have a positive effect on nursing students' and nurses' experimental research, show that simulation programs particularly instructors, emphasized that due to limitations er stress and pressure (18). Most of the participants, par members, their experiences are thus coupled with great the challenge of interacting with the children's family and nurses' experiences during their trainings mainly involve adult patients. As pediatric nursing students deal with weaker and more fragile patients and need to face the children's family members, their experiences are thus coupled with greater stress and pressure (18). Most of the participants, particularly instructors, emphasized that due to limitations in pediatric clinical trainings, simulators can serve as efficient aids to clinical trainings. Many studies, including experimental research, show that simulation programs have a positive effect on nursing students' and nurses' sense of self-efficacy (19, 20). Considering the progress of technology and science in the fields of nursing and medical sciences, nurses' professional capabilities also need to be developed. Results obtained by Aghdami also showed that insufficient re-instructive courses are one of the most significant barriers to the fulfillment of pediatric nurses' technical duties (21). Participants also believed that lack of a rewards system and inappropriate managerial policies, including the non-application of cooperative management by nursing directors, impacts nurses' inefficiency. In Bandura's view, a proper rewards system including verbal compliment and feedback received from social environments is among the most common and easiest sources of self-efficacy creation and improvement. Verbal convincing and verbal encouragements, such as telling them they have the prerequisites to be successful and reach their goals, can improve their sense of self-efficacy (22, 23). In addition, Manojlovich's study revealed that providing encouragement and complements, even verbally, improves nurses' self-efficacy and performance (10). For nurses to feel efficient, their directors and nurses should encourage and compliment them, accept, support, and reassure them. Managers can help to enhance nurses' self-efficacy through emotional encouragement (24). Mahmoudirad et al. showed in their semi-experimental study that there is a significant relationship between managerial qualities and nurses' perception of their capabilities (25). Participants also stated that a lack of teamwork and cooperative management, not allowing them to make decisions, and limiting nurses to pre-planned tasks mars nurses' sense of self-efficacy. Laschinger's study also showed that the improper distribution of power, a lack of freedom, and not contributing to decision making reduce nurses' sense of self-efficacy and professional health and efficiency, as well as increases their tension, absence, and inability to provide quality caring services (26). Nursing director's management method affects nurses' quality of life and their capabilities (27). Thus, in today's world in which thought and human capital are of prime importance, the identification of these

| Categories                                      | Frequencya |
|------------------------------------------------|------------|
| Individual Barriers                            |            |
| Not having a caring attitude                   | 15 (51.85) |
| Not being interested in children               | 22 (81.48) |
| Organizational barriers                        |            |
| Inefficient educational system                 | 11 (40.74) |
| Not developing professional capabilities        | 9 (33.33)  |
| Not valuating the organization in the concept of caring | 7 (25.92) |
| Poor rewards system                            | 13 (48.14) |
| Inappropriate managerial strategies             | 7 (25.92)  |

aData are presented as frequency (%).
criteria would help managers and nursing directors to change their attitude and managerial and educational strategies to overcome the barriers to nurses' sense of self-efficacy and pave the way for improving the quality of their caring services, enhancing patients' satisfaction, and improving the social status of the nursing profession. Although the subjective nature of the data collection limits the generalizability of this study's results, the strong points of this study were choosing subjects from among experienced people with different nursing educational qualifications and utilizing maximal variation (with regard to age, work experience, different social and economic status) in the selection of participants, which make the results largely applicable in similar units.

Acknowledgments

We hereby express our gratitude to the research deputy of Isfahan University of Medical Sciences for supporting and funding this project. We also thank all the nurses and instructors for taking the time to share their valuable experiences.

Footnotes

Authors' Contribution: Masoud Bahrami was responsible for research, study design and drafting manuscript. Azam Alavi provided data collection and study design and analysis. Ali Zargham-Boroujeni and Alireza Yousefy provided study design and supervision.

Funding/Support: We hereby express our gratitude to the research deputy of the Isfahan University of Medical Sciences for supporting and funding this project.

References

1. Papastavrou E, Efstratiou G, Charalambous A. Nurses’ and patients’ perceptions of caring behaviours: quantitative systematic review of comparative studies. J Adv Nurs. 2011;67(5):1071–80. doi: 10.1111/j.1365-2640.2010.05580.x. [PubMed: 20764239]

2. Cimotti JP, Barton SJ, Chavuza Gorman KE, Slaone DM, Aiken LH. Nurse reports on resource adequacy in hospitals that care for acutely ill children. J Healthc Qual. 2014;36(2):25–32. doi: 10.1111/j.1558-1829.2012.00216.x. [PubMed: 22731356]

3. Lee TW, Ko YK. Effects of self-efficacy, affectivity and collect efficacy on nursing performance of hospital nurses. J Adv Nurs. 2010;66(4):389–48. doi: 10.1111/j.1365-2640.2009.05244.x. [PubMed: 20423371]

4. Karabacak U, Serbest S, Kan Onturk Z, Eti Aslan F, Olgun N. Relationship between student nurses’ self-efficacy and psychomotor skills competence. Int J Nurs Pract. 2013;19(2):124–30. doi: 10.1111/ijn.12051. [PubMed: 23577969]

5. Zengin N, Pinar R, Akinci AC, Yildiz H. Psychometric properties of the self-efficacy for clinical evaluation scale in Turkish nursing students. J Clin Nurs. 2014;23(7-8):976–84. doi: 10.1111/jocn.12257. [PubMed: 23876232]

6. Zulkosky KS. Self-efficacy: A concept analysis. 2009;44:93–102.

7. Bandura A. Guide for constructing self-efficacy scales. IAP, 2006.

8. Washington OG, Moyle DP. Self-efficacy as a unitifying construct in nursing-social work collaboration with vulnerable populations. Nurs Inq. 2013;20(1):42–50. doi: 10.1111/jini.12012. [PubMed: 23753148]

9. Lee P-Y, Dunne MP, Chou-FH, Fraser JA. Development of the child abuse and neglect reporting self-efficacy questionnaire for nurses. Kaohsiung J Med Sci. 2012;28(1):44–51. [PubMed: 22262060]

10. Manojlovich M. Promoting nurses’ self-efficacy: a leadership strategy to improve practice. J Nurs Adm. 2009;39(5):278–87. doi: 10.1111/j.1365-2834.2011.01289.x. [PubMed: 22050114]

11. Lauder D, Watson R, Topping K, Holland K, Johnson M, Porter M, et al. An evaluation of fitness for practice curricula: self-efficacy, support and self-reported competence in preregistration student nurses and midwives. J Clin Nurs. 2008;17(34):3858–67. doi: 10.1111/j.1365-2702.2007.02223.x. [PubMed: 18576760]

12. Robb. M. Self-efficacy with application to nursing education. A Concept Analysis. 2012;47:166–172.

13. Stump GS, Husman J, Brem SK. The Nursing Student Self-efficacy Scale: development using item response theory. Nurs Res. 2012;61(3):149–58. doi: 10.1097/NNR.0b013e318253a750. [PubMed: 22559899]

14. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today. 2004;24(2):105–12. doi: 10.1016/j.nedt.2003.10.001. [PubMed: 14769454]

15. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res. 2005;15(9):1277–88. doi: 10.1177/1049732305276687. [PubMed: 16044055]

16. Rhodes MK, Morris AH, Lazenby RB. Nursing at its best: competent and caring. Online J Issues Nurs. 2011;16(2).

17. Abbasianfard M, Bahrami H, Abghar G. Relationship between self-efficacy with achievement motivation in pre-university girl students. Appl Psychol. 2010;4(13):95–109.

18. Oermann MH, Lukomski AP. Experiences of students in pediatric nursing clinical courses. J Soc Pediatr Nurs. 2001;6(2):65–72. [PubMed: 11264636]

19. Pike T, O’Donnell V. The impact of clinical simulation on learner self-efficacy in pre-registration nursing education. Nurse Educ Today. 2010;30(5):405–10. doi: 10.1016/j.nedt.2009.09.013. [PubMed: 19883960]

20. Roh. Y S., Lee WS, Chung HS, Park YM. The Effects of Simulation-based Resuscitation Training on Nurses’ Self-efficacy and Satisfaction. Nurs Educ Today. 2013;33(2):232–8.

21. Aghdami M, Alhoni F. Obstacles To Implementation Of Professional Pediatric Nursing [Job Description In The Pediatric Hospitals, Iran J Nurs (Ijn)]. 2013;20(7):99–109.

22. Kiritchen J, Cassidy S, Euchast P, Hogg P. Creating and validating self-efficacy scales for students. Radcl Technol. 2011;18(3):209–9. [PubMed: 21908776]

23. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. Psychol Rev. 1982;89(2):112–47. doi: 10.1037/0033-295X.89.2.112. [PubMed: 7072885]

24. Abdullahi B. The self-efficacy role on empowering employees. J Nurs Adm. 2001;31(4):167–70. doi: 10.1016/S0022-5121(00)00283-4. [PubMed: 12050534]

25. Papastavrou E, Efstratiou G, Acaroglu R, Luz DA, Antunes MD, Berg A, Ilday E, et al. A seven country comparison of nurses’ perceptions of their professional practice environment. J Nurs Manag. 2011;20(1):1011153-2831. doi: 10.1111/j.1365-2702.2010.03383.x. [PubMed: 22050114]