Therapy adherence in asthma – Assessment of potential adherence barriers

Gottschalk F[1], Sabrina Mueller[1], Simone Torka[2], Victoria Unmüßig[2], Thomas Wilke[3]

1 IPAM, University of Wismar, Alter Holzhafen 19, 23966 Wismar, Germany. Electronic address: kontakt@ipam-wismar.de
2 GlaxoSmithKline GmbH & Co. KG, Prinzregentenplatz 9, D-81675 Muenchen, Germany.
3 Ingress-Health HWM GmbH, Alter Holzhafen 19, 23966 Wismar, Germany.

Background

Medication-related non-adherence (NA) is a well-recognized challenge in the real-world treatment of chronically ill patients. However, causes of NA are still not precisely understood. The aim of this study was to determine causes of NA (adherence barriers) of German asthma patients based on the Asthma-Adherence Barriers Questionnaire (Asthma-ABQ), which has already been validated as an instrument for the assessment of adherence barriers in other chronic diseases such as atrial fibrillation.

Methods

Within a large observational multicenter study, randomly selected German general practitioners (GPs) and pulmonologists enrolled asthma patients from 01/2015-01/2016. Within the study, patients completed the Asthma-Adherence Barriers Questionnaire (ABQ) during a telephone-interview.

The ABQ aims to measure whether any adherence barriers are present in a patient. A total of 16 items (Figure 1) addressing potential adherence barriers are considered for the ABQ, with each of the items being formulated as a statement. Answers are given based on a 4-point Likert scale, which deliberately leaves out a mean response option to force the respondents to a decision. The possible answers are "strongly agree," "generally agree," "generally disagree" and "strongly disagree," which are given values from 1 to 4 or rather 4 to 1 depending on the formulation of each item. A higher score indicates a higher influence of a certain barrier on the patient's perceptions. The sum score of all items ranges from 16 to 64. Based on patients` responses, a general as well as item- and subscale-specific ABQ score indicating number and strength of adherence barriers present in a patient can be calculated. Previous validations of the ABQ have indicated that a score of a single item of > 2 indicates an existing barrier. A total score of all added up items of >25 indicates a significantly higher non-adherence probability. Generally, adherence barriers can be classified into different barrier groups[1], representing either medication-related barriers (such as the complexity of medication regimes and fear of side-effects), health care system-related barriers (for example co-payments, waiting times, long journeys to reach the doctor, etc.), patient-related unintentional barriers (such as depression, dementia, or the level of forgetfulness) and patient-related intentional barriers (general attitudes towards the health-care system, medication and treatment or health beliefs).

Results

543 asthma patients (mean age: 53.0 years, female: 74.9%) were included.

On average, 3.2 (range: 0-9) different barriers were identified per patient. The most frequently reported barriers were patient-related intentional factors, indicating the perceived need of a medication because patients felt healthy (item 6; affected 39.8% of the patients) or they believed that medicines are harmful in general (item 5; affected 53.6% of the patients). Co-payments, which express health-care system related barriers, proved to be a burden for 43.8% of the patients. Moreover, 28.2% of the patients were concerned about side effects and 26.9% would stop/reduce their medication if they would notice side effects. Furthermore, patient-related unintentional barriers such as forgetfulness (27.6%) and depression (31.3%) seemed to be considerable issues.

A difference between male and female patients, measured as the difference in the percentage of affected patients, has been observed for the following barriers:
- Item 8 (co-payments): Women 47.9% vs. men 31.6% (p< 0.001);
- Item 10 (feeling discouraged/depressed): Women 34.2% vs. men 22.8% (p= 0.013);
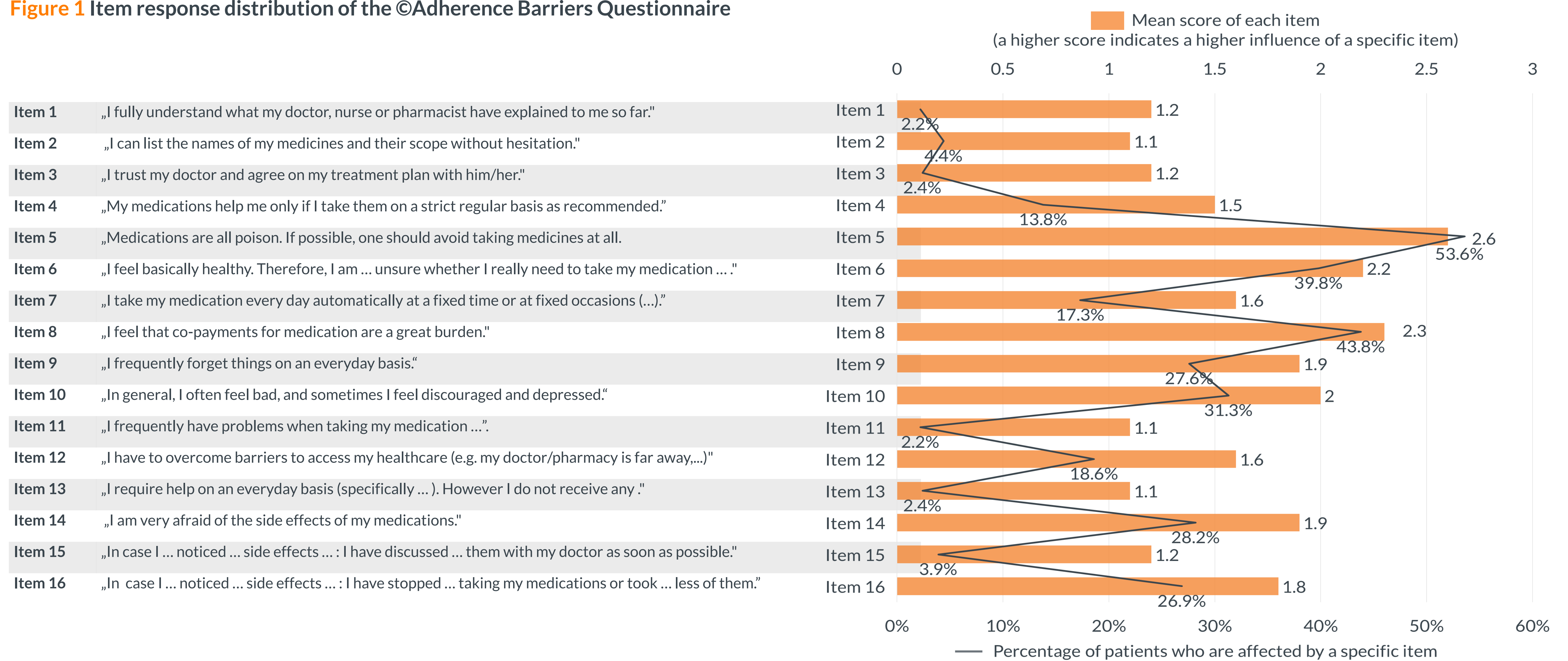- Item 14 (afraid of side effects): Women 30.7% vs. men 20.6% (p = 0.023).

An age effect has been observed for:
- Items 7 (daily routine for medication intake): Decreasing influence of the barrier with increasing age (p< 0.001; controlled for sex);
- Item 13 (Required help regarding drug therapy): Growing influence of the barrier with increasing age (p= 0.016; controlled for sex);
- Item 16 (Stop taking medication in case of side effects): Decreasing influence of the barrier with increasing age (p= 0.029; controlled for sex).

In 6.3% of the patients, none of the assessed barriers existed. The presence of more than one barrier was detected in 81.5% of the patients. For 22.5% of the patients, at least 5 barriers existed.

The correlation of every item (coded as (1) existing barrier and (0) no existing barrier) and the 8-item Morisky Medication Adherence Scale[2] as a measurement of patients` self-reported NA has been tested within the study. Within single regression analyses (controlling for patients' age and sex), the presence of the following barriers was found to have a significantly negative impact on patients self-reported adherence: item 1-7, item 10 and item 16 (p< 0.005).

Figure 1 Item response distribution of the ©Adherence Barriers Questionnaire

Mean score of each item (a higher score indicates a higher influence of a specific item)

Item	Statement	Mean score	Percentage affected
Item 1	„I fully understand what my doctor, nurse or pharmacist have explained to me so far."	1.2	2.2%
Item 2	„I can list the names of my medicines and their scope without hesitation."	1.1	4.4%
Item 3	„I trust my doctor and agree on my treatment plan with him/her."	1.2	2.4%
Item 4	„My medications help me only if I take them on a strict regular basis as recommended."	1.5	13.8%
Item 5	„Medications are all poison. If possible, one should avoid taking medicines at all.	2.6	53.6%
Item 6	„I feel basically healthy. Therefore, I am … unsure whether I really need to take my medication … ."	2.2	39.8%
Item 7	„I take my medication every day automatically at a fixed time or at fixed occasions (…)."	1.6	17.3%
Item 8	„I feel that co-payments for medication are a great burden."	2.3	43.8%
Item 9	„I frequently forget things on an everyday basis."	1.9	27.6%
Item 10	„In general, I often feel bad, and sometimes I feel discouraged and depressed."	2	31.3%
Item 11	„I frequently have problems when taking my medication …".	1.1	2.2%
Item 12	„I have to overcome barriers to access my healthcare (e.g. my doctor/pharmacy is far away,...)"	1.6	18.6%
Item 13	„I require help on an everyday basis (specifically …). However I do not receive any ."	1.1	2.4%
Item 14	„I am very afraid of the side effects of my medications."	1.9	28.2%
Item 15	„In case I … noticed … side effects … : I have discussed … them with my doctor as soon as possible."	1.2	3.9%
Item 16	„In case I … noticed … side effects … : I have stopped … taking my medications or took … less of them."	1.8	26.9%

— Percentage of patients who are affected by a specific item

Conclusion

Assessing not only the degree of NA but also its potential causes is an important aspect for the development of successful adherence-promoting interventions, since some barriers are perceived as more burdensome than others. Moreover, patients can experience multiple barriers and the importance may vary between patients of different ages and sex, which implies that a personalized or multi-factorial approach may be useful in the prevention of NA.

Key words

Asthma, adherence, persistence, Reasons for non-adherence / non-persistence, barriers of adherence / persistence, adherence barriers questionnaire

Funding / Disclosure

References

(1) Müller, Kohlmann, Wilke (2015): Validation of the Adherence Barriers Questionnaire – an instrument for identifying potential risk factors associated with medication-related non-adherence BMC Health Services Research 2015.15:153.
(2) Morisky et al. (2008): Predictive Validity of A Medication Adherence Measure in an Outpatient Setting. J Clin Hypertens (Greenwich). 2008 May; 10(5): 348–354.