# Criterion validation of the
# Living with Medicines Questionnaire (LMQ-3)

## a patient-reported measure of medicine-related burden

Barbra Katusiime, Sarah Corlett, Janet Krska

UNIVERSITY *of* GREENWICH

**medway** school of pharmacy
Pharmacy Practice Research Group

University of Kent

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**Medicines Optimisation:**
Helping patients to make
the most of medicines

*Good practice guidance for
healthcare professionals in
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May 2013

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Improved patient outcomes

Principle 1
Aim to understand
the patient's
experience

Principle 2
Evidence based
choice of
medicines

Patient-centred
approach

Principle 4
Make medicines
optimisation part of
routine practice

Principle 3
Ensure medicines
use is as safe as
possible

Aligned measurement & monitoring of
medicines optimisation
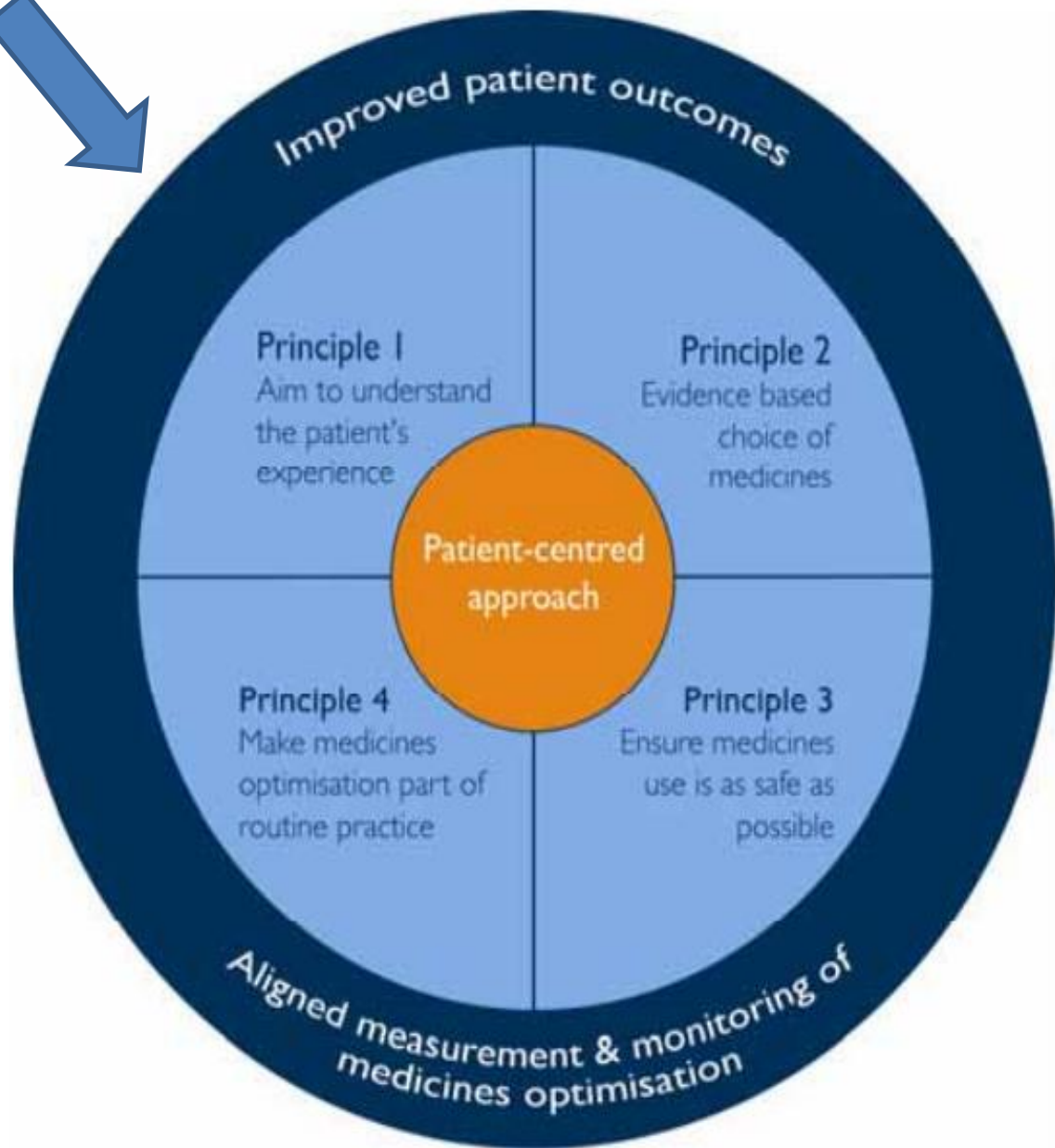
# Prescription medicine use experiences

## the**bmj**
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We need minimally disruptive medicine

*BMJ* 2009 ; 339  doi: http://dx.doi.org/10.1136/bmj.b2803 (Published 11 August 2009)

Cite this as: *BMJ* 2009;339:b2803

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**BMJ Open** Medication-related burden and patients' lived experience with medicine: a systematic review and metasynthesis of qualitative studies

Mohammed A Mohammed, Rebekah J Moles, Timothy F Chen

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**Research Article**
International Journal of Clinical Pharmacy
December 2013, Volume 35, Issue 6, pp 1161-1169

First online: 29 August 2013

## Issues potentially affecting quality of life arising from long-term medicines use: a qualitative study

Janet Krska ✉ , Charles W. Morecroft, Helen Poole, Philip H. Rowe

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Patient Related Outcome Measures                    Dovepress
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🔓 Open Access Full Text Article                              REVIEW

Measuring medicine-related experiences from the patient perspective: a systematic review

Barbra Katusiime[1]
Sarah Corlett[1]
Joanne Reeve[2]
Janet Krska[1]

This article was published in the following Dove Press journal:
Patient Related Outcome Measures
4 October 2016
Number of times this article has been viewed

**Background:** There is an increasing drive to measure and so improve patients' experiences and outcomes of health care. This also applies to medicines, given their ubiquity as health care interventions. Patients' experiences of using medicines vary, and instruments which measure these are seen as an essential component to improve care. We aimed to identify generic measures of patients' experiences of using prescription medicines and to examine their properties and

# The Living with Medicines Questionnaire

- The LMQ is a novel, generic, patient-reported measure of medicine-related burden developed in the UK.[3]

- LMQ Version 3 (LMQ-3) is a 41-item tool with 8 domains:[4]

  - Lack of effectiveness

  - Side effects

  - Practical difficulties

  - Interferences with day-to day life

  - Communication problems with health care professionals (HCPs)

  - General concerns

  - Cost-burden

  - Lack of autonomy

  Overall medicine burden is measured by the LMQ-3 total score.

[3]Krska et al, 2014. Measuring the impact of long-term medicines use from the patient perspective. Int. J. Clin. Pharm. 2014; 36, 675–678. [4]Katusiime et al, 2016. Validation of a revised Living with Medicines Questionnaire (LMQ© version 3). IJPP 2016; 24 (Suppl 2): 17

# LMQ - Development & Validation steps to-date

**Develop-ment**

- New item generation by patient interviews, literature review & expert/team discussions

**Validity testing**

- Face/content validation by cognitive interviews
- Construct validation by factor analyses
- **#Criterion validation using standard measures of related/distinct concepts – Today's Talk.**

**Reliability testing**

- Internal consistency
- Test-retest reliability

**LMQ-3**

# Aim of research study

o To investigate the criterion-related validity of the LMQ-3 against standard measures of treatment satisfaction and health-related quality of life (HRQoL).

# Methods – Study instruments

The LMQ-3 (burden) was tested alongside two standard questionnaires:

[1] TSQM-II, the Treatment Satisfaction Questionnaire for Medication

It is an 11-item measure of satisfaction with four aspects of medicines use:

- Effectiveness
- Side effects
- Convenience
- General satisfaction

[2] EQ-5D-5L, the EuroQol five-dimensional questionnaire

It is a 5-item generic measure of aspects of **health-related quality of life**:

- Mobility
- Self-care
- Pain/discomfort
- Anxiety/depression
- Usual activities

All five items are scored from 1 to 5 for 'no problems' to extreme problems

General health status is rated from 0 to 100 for 'worst' to 'best' imaginable health.

# A priori Hypothesised relationships

## 1. Treatment satisfaction (TSQM-II)

o A negative relationship between overall medicine burden and aspects of treatment satisfaction.

o Predicted strength of correlations - moderate-strong (Spearman's r, 0.4 -0.79);

## 2. Health-related Quality of Life (EQ-5D-5L)

o A negative relationship between overall medicine burden and general health status.

o A positive relationship between overall medicine burden and increasing problems with mobility, self-care, pain/discomfort, anxiety/depression & usual activities.

o Predicted strength of correlations - weak-moderate (Spearman's r, ≤ 0.59).

# Methods- Recruitment

○ **Inclusion:** participants were adults (18 years or older), using at least one long-term prescription medicine for any disease/condition, and living in England.

○ **Distribution:** Questionnaires were distributed by hand to patients in community pharmacies, general practices and hospital out-patient departments in south-east England.

○ NHS **Ethics approval** was obtained and study information was provided to all participants.

# Results- response rates & characteristics

**Response rates:**

- Overall, 422/1306 completed questionnaires were returned (32.3%);
  - 29.4 % (n=275/936) outpatient clinics;  .
  - 36.4% (n=80/220) for GP practices;
  - 44.7% (n=67/150)  for community pharmacies

**Participant characteristics:**

- 52.8% (n=208) were female, mean (SD) age was 56.1 (18.17), and the mean (SD) number of medicines used was 4.6 (3.67).

# Results-

# Correlations between Medicine burden (LMQ-3) & Treatment satisfaction (TSQM-II)

| LMQ-3

Aspects of medicine burden | TSQM-II Satisfaction with **Effectiveness** | Satisfaction with **Side-Effects** | Satisfaction with **Convenience** | **General satisfaction** |
| --- | --- | --- | --- | --- |
| Lack of effectiveness | -0.628 | -0.376 | -0.424 | -0.571 |
| Side effects | -0.414 | -0.597 | -0.449 | -0.516 |
| Practical difficulties | -0.367 | -0.405 | -0.529 | -0.426 |
| Interferences with day-to-day living | -0.360 | -0.560 | -0.451 | -0.430 |
| Communication problems with HCPs | -0.476 | -0.278 | -0.360 | -0.394 |
| General concerns | -0.406 | -0.469 | -0.401 | -0.410 |
| Cost-burden | -0.141 | -0.193 | -0.157 | -0.232 |
| Lack of autonomy | 0.139 | 0.010 | 0.057 | 0.121 |
| Overall burden | -0.554 | -0.623 | -0.564 | -0.616 |

# Results-

## Correlations between Medicine burden & aspects of Health-related Quality of Life

| EQ-5D-5L<br><br>HRQoL aspects | LMQ-3 total score<br><br>(Overall medicine burden) |
|---|---|
| Mobility | 0.306 |
| Self-care | 0.284 |
| Usual activities | 0.318 |
| Pain/discomfort | 0.382 |
| Anxiety/depression | 0.436 |
| General health | -0.383 |

- Higher medicine burden scores were weakly associated with problems in the five specific HRQoL aspects, and negatively associated with general health status.

# Hypothesised relationships- all achieved

## 1. Treatment satisfaction (TSQM-II)

☑ A negative relationship between overall medicine burden and aspects of treatment satisfaction. Predicted strength of correlations, moderate-strong (Spearman's r ≤ 0.628).
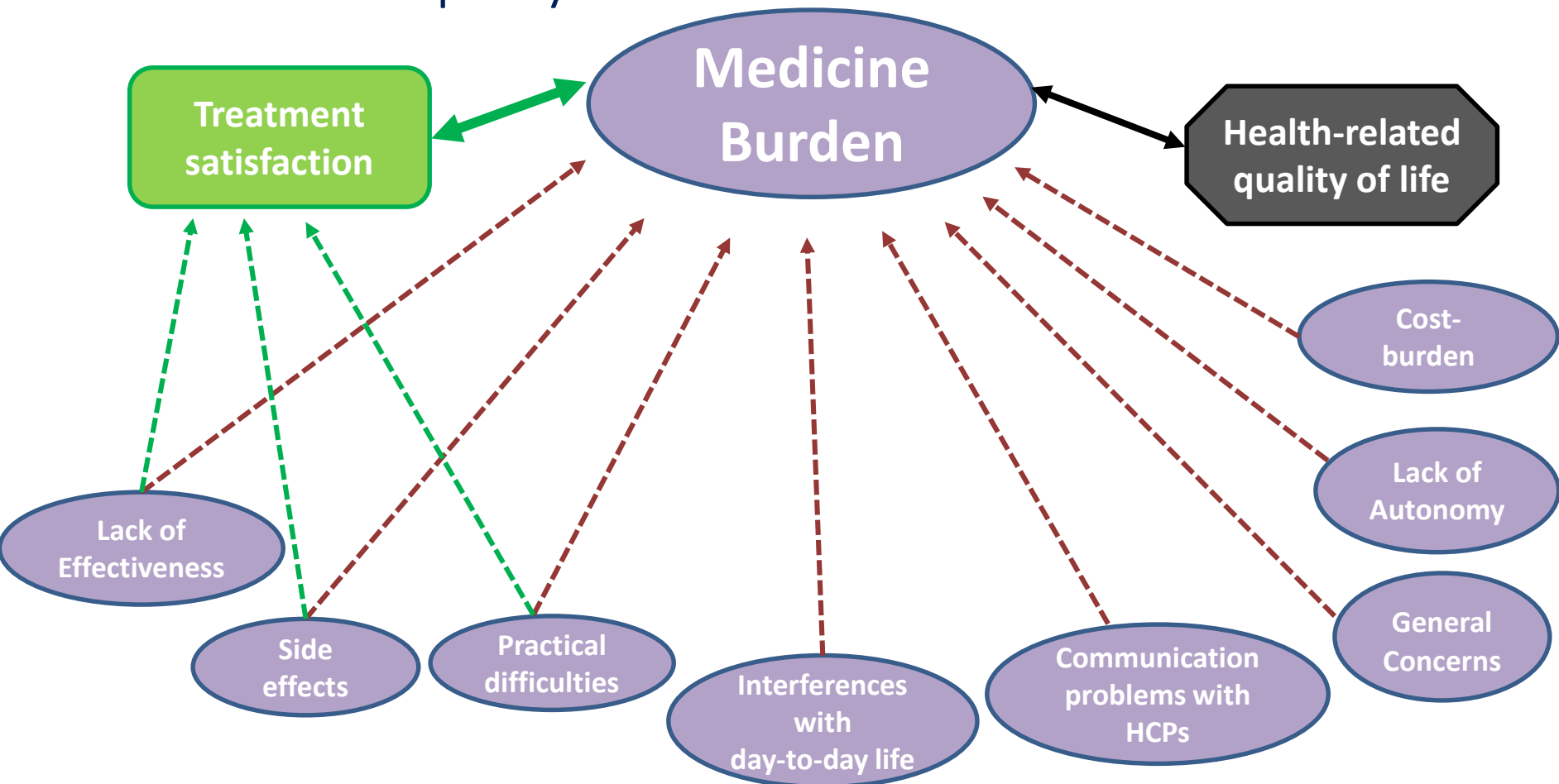
## 2. Health-related Quality of Life (EQ-5D-5L)

☑ A positive relationship between overall medicine burden and increasing problems with mobility, self-care, pain/discomfort, anxiety/depression, & usual activities.

☑ A negative relationship between overall medicine burden and general health status. Predicted strength of correlations - weak-moderate (Spearman's r, 0.284-0.436)
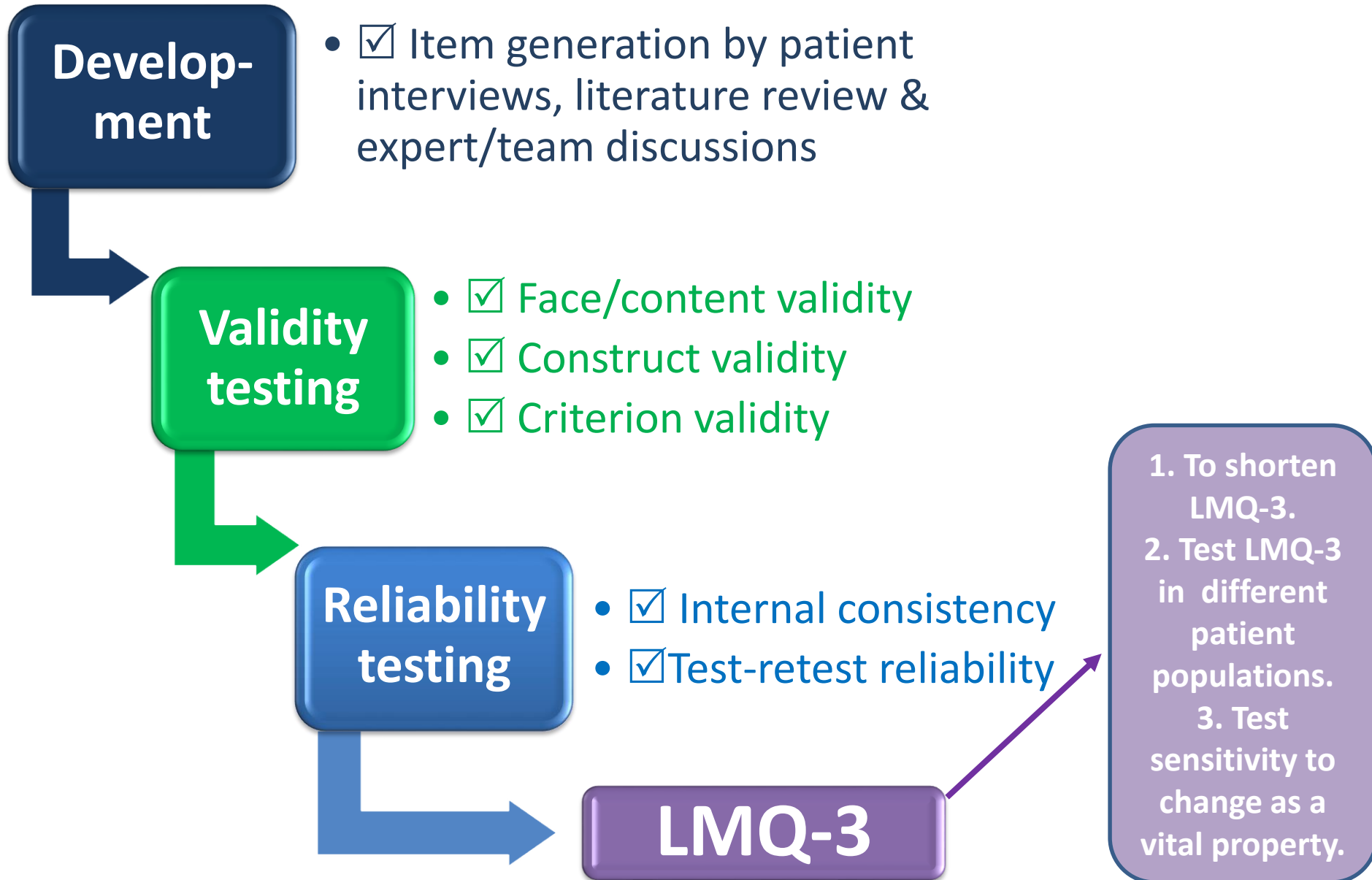
All correlations were below 0.8 suggesting that burden, satisfaction & HRQoL are three distinct concepts, though with some overlap.

# Conclusion

- Findings from this project support the validity of the LMQ-3 as a measure of medicine-related burden and suggest it assesses a distinct concept negatively related to treatment satisfaction and health-related quality of life.

# Future work on LMQ-3

**Develop-ment**

- ☑ Item generation by patient interviews, literature review & expert/team discussions

**Validity testing**

- ☑ Face/content validity
- ☑ Construct validity
- ☑ Criterion validity

**Reliability testing**

- ☑ Internal consistency
- ☑ Test-retest reliability

**LMQ-3**

1. To shorten LMQ-3.
2. Test LMQ-3 in different patient populations.
3. Test sensitivity to change as a vital property.

# Acknowledgements

o   We thank all study participants, & all participating organisations.

o   Thanks to the EuroQoL Research Foundation & the Quintiles Inc®

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**medway** school of pharmacy
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## Medicines and Your Day-to-Day Life – Living with Medicines Questionnaire

**LMQ**
Living with Medicines Questionnaire

**Medicines and Your Day-to-Day Life**

The following statements cover different aspects of using medicines.

Please read each statement carefully and tick the response box that is closest to your personal opinion. Please **tick only one box** for each statement.

| | Strongly agree | Agree | Neutral opinion | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| I find getting my **prescriptions** from the doctor difficult. | ☐ | ☐ | ☐ | ☐ | ☐ |
| I find getting my **medicines** from the pharmacist difficult. | ☐ | ☐ | ☐ | ☐ | ☐ |
| I am **satisfied** with the effectiveness of my medicines. | ☐ | ☐ | ☐ | ☐ | ☐ |
| I am **comfortable** with the times I should take my medicines. | ☐ | ☐ | ☐ | ☐ | ☐ |
| I worry about **paying** for my medicines. | ☐ | ☐ | ☐ | ☐ | ☐ |

**For permission to use the LMQ-3©, please contact:**
**J.Krska@kent.ac.uk**

**For further discussions/questions:**

**bk231@kent.ac.uk**