A WEB-BASED SYSTEM FOR SLEEP DISORDERS MANAGEMENT

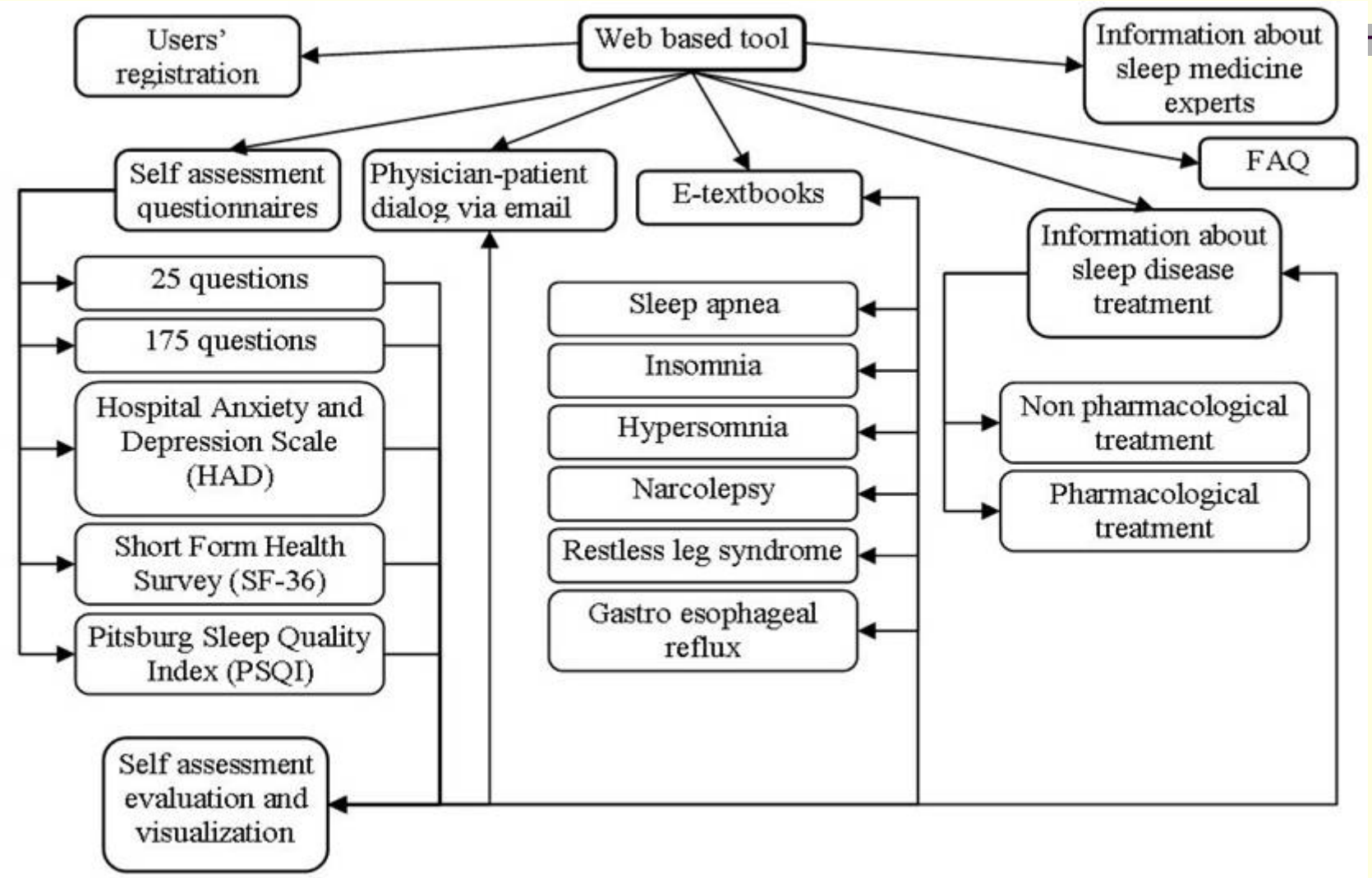
G. Varoneckas[1], A. Zilinskas[2], A. Varoneckas[2],
A. Podlipskyte[1], A. Martinkėnas[1]

[1]Institute Psychophysiology and Rehabilitation , Palanga, Lithuania
[2]Vytautas Magnus University , Kaunas, Lithuania

The goal of the study

- was development of a public Web-based tool for self-assessment of sleep disorders, specialized diagnostics, treatment regimens, education and consultations with physician on sleep disorders

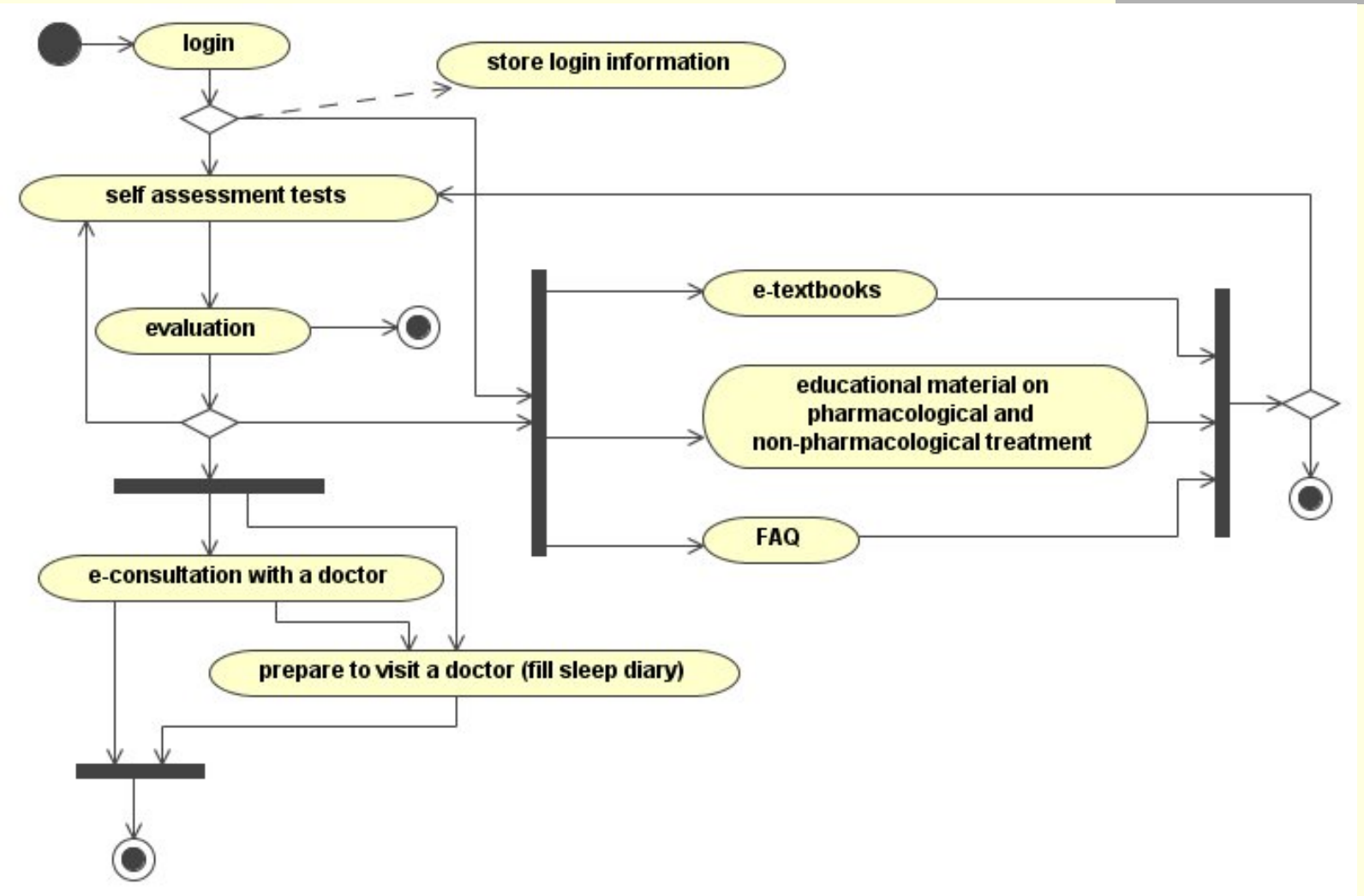
Structure of the Web based system



System configuration

- Linux – based web/database server
  - Apache web server
  - PHP script language
  - Octave
  - MySQL database
- Expert system
  - Knowledge base (linguistic “IF...THEN...” rules)
    - Fact base
    - Rule base
  - Inference mechanism

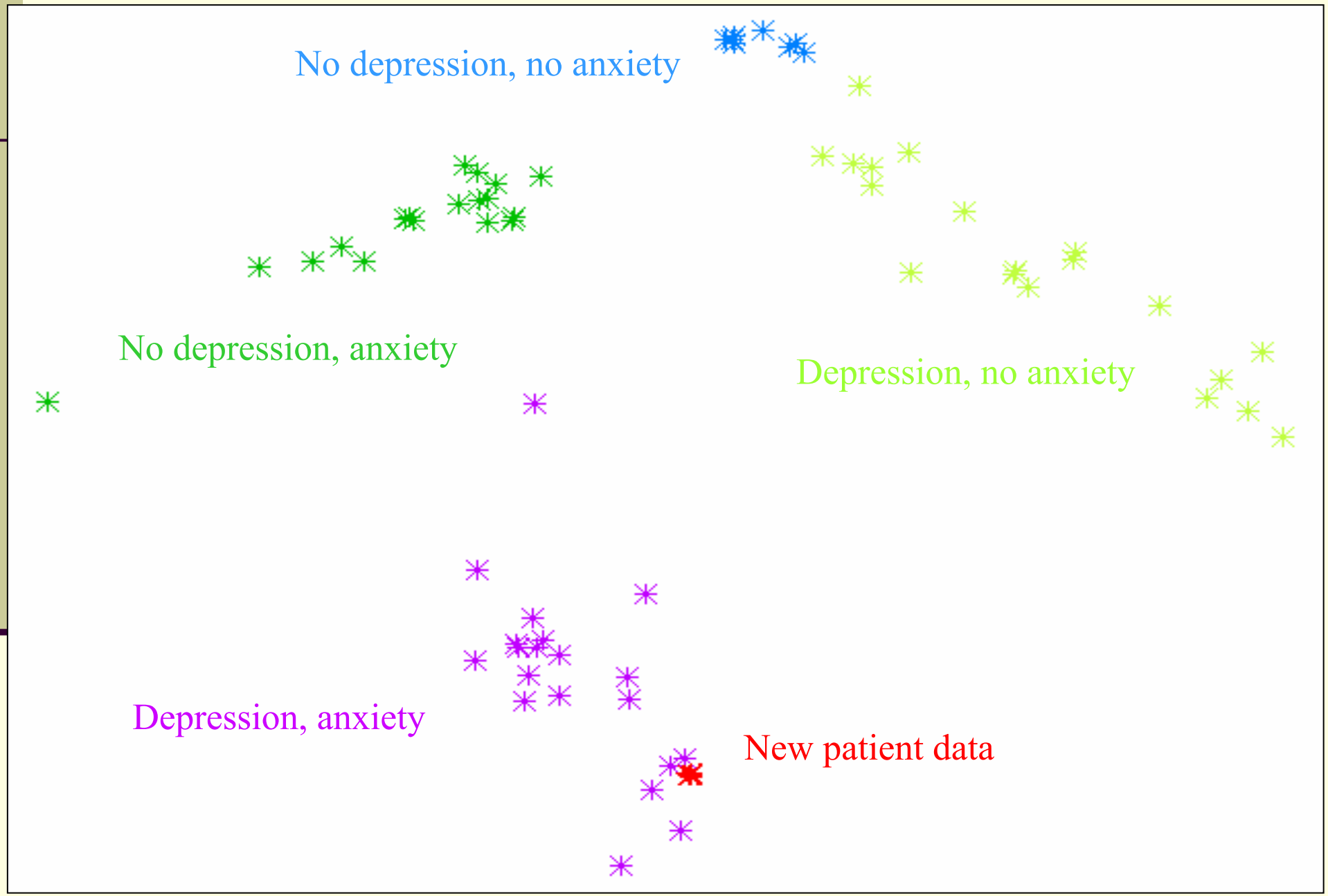
User activity diagram



Self assessment using HAD scale

Self assessment using HAD scale

Anxiety	**YES (15)**
Depression	**YES (15)**

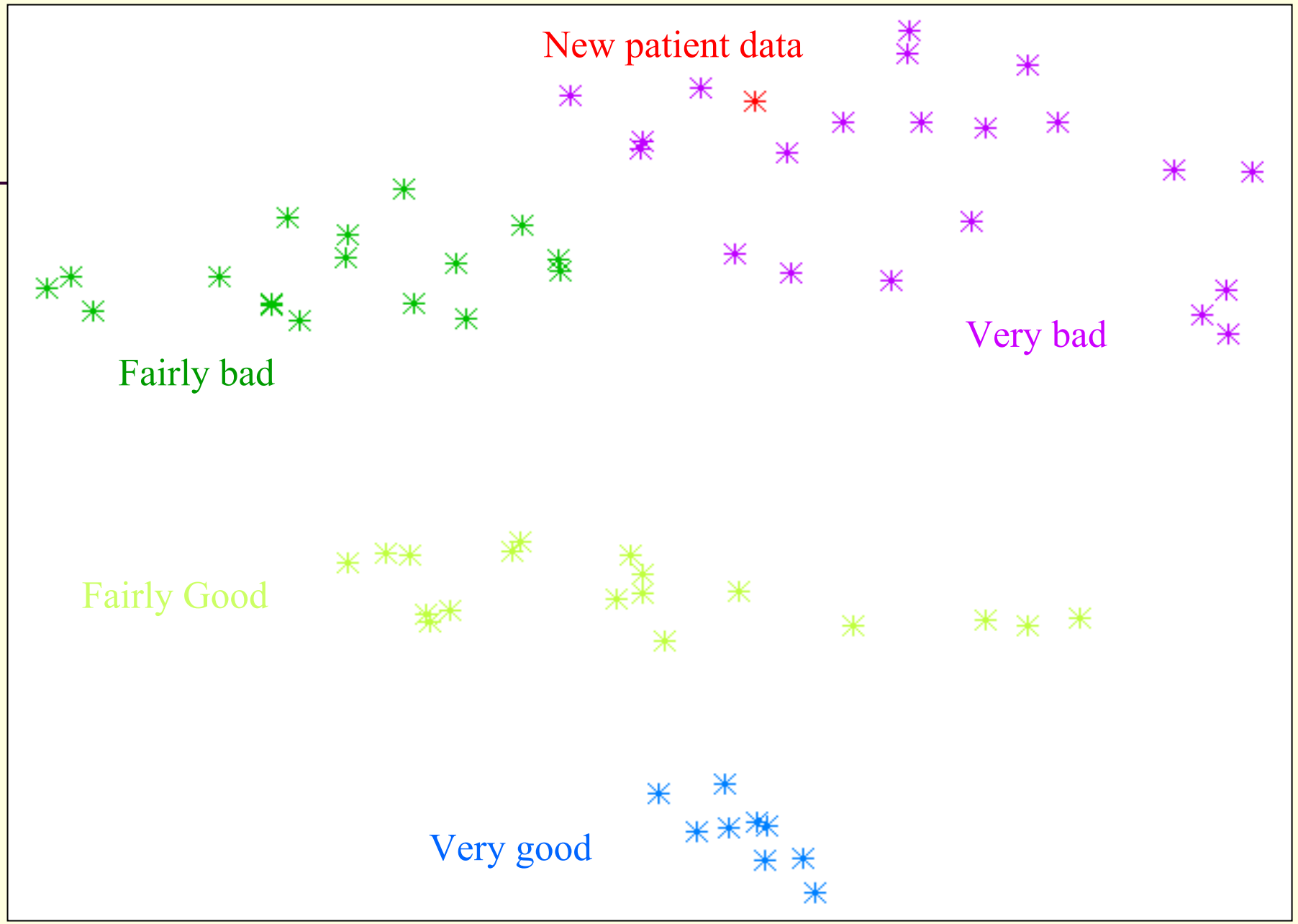

No depression, no anxiety
No depression, anxiety
Depression, no anxiety
Depression, anxiety
New patient data

Self assessment using PSQI

Self assessment using PSQI

The Pittsburgh Sleep Quality Index (PSQI) 16

Subjective sleep quality	2
Sleep latency	1
Sleep duration	3
Habitual sleep efficiency	3
Sleep disturbances	2
Use of sleeping medication	3
Daytime dysfunction	2


New patient data
Very bad
Fairly bad
Fairly Good
Very good

Conclusions

- A Web-based tool combining e-learning, expert system and tele-medicine techniques is useful to enhance the health care of patients suffering from sleep disorders

- Visualization of assessment of sleep quality and psychoemotional status by means of multidimensional scaling improves explanatory possibilities of the expert system.