EFFECT OF E-FEEDBACK ON KNOWLEDGE ABOUT RADIOTHERAPY OF BREAST CANCER PATIENTS

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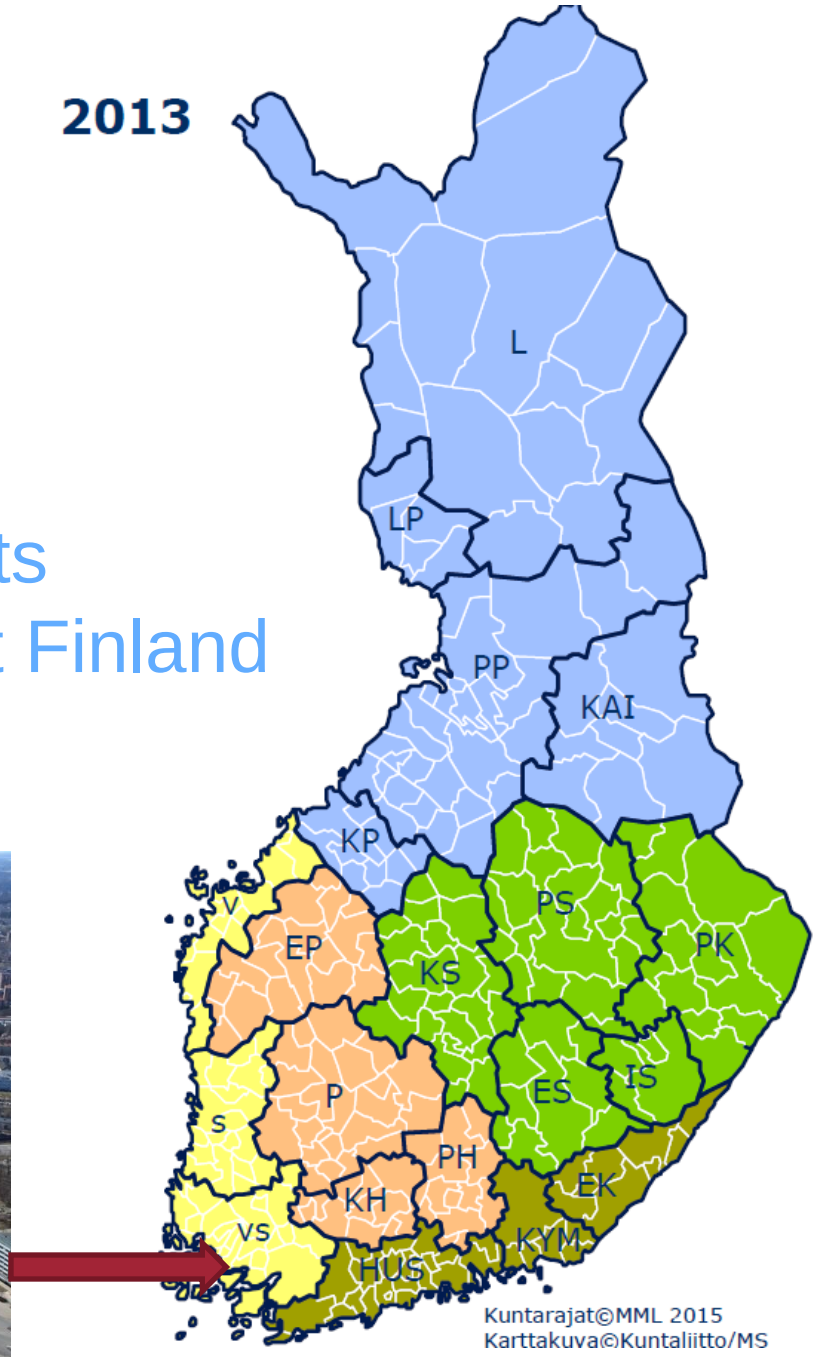
Finland:

- ~5.4 milj citizens
- 32 092 cancer patients
- 4 808 breast cancer patients

Hospital District of Southwest Finland

- ~ 800 000 citizens

City of Turku



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Content

- Background
- Earlier studies of the use of e-feedback in patient education
- The e-Feedback of Radiotherapy (e-Re-Know) -intervention for breast cancer patients
- Study design
- Results
- Conclusion

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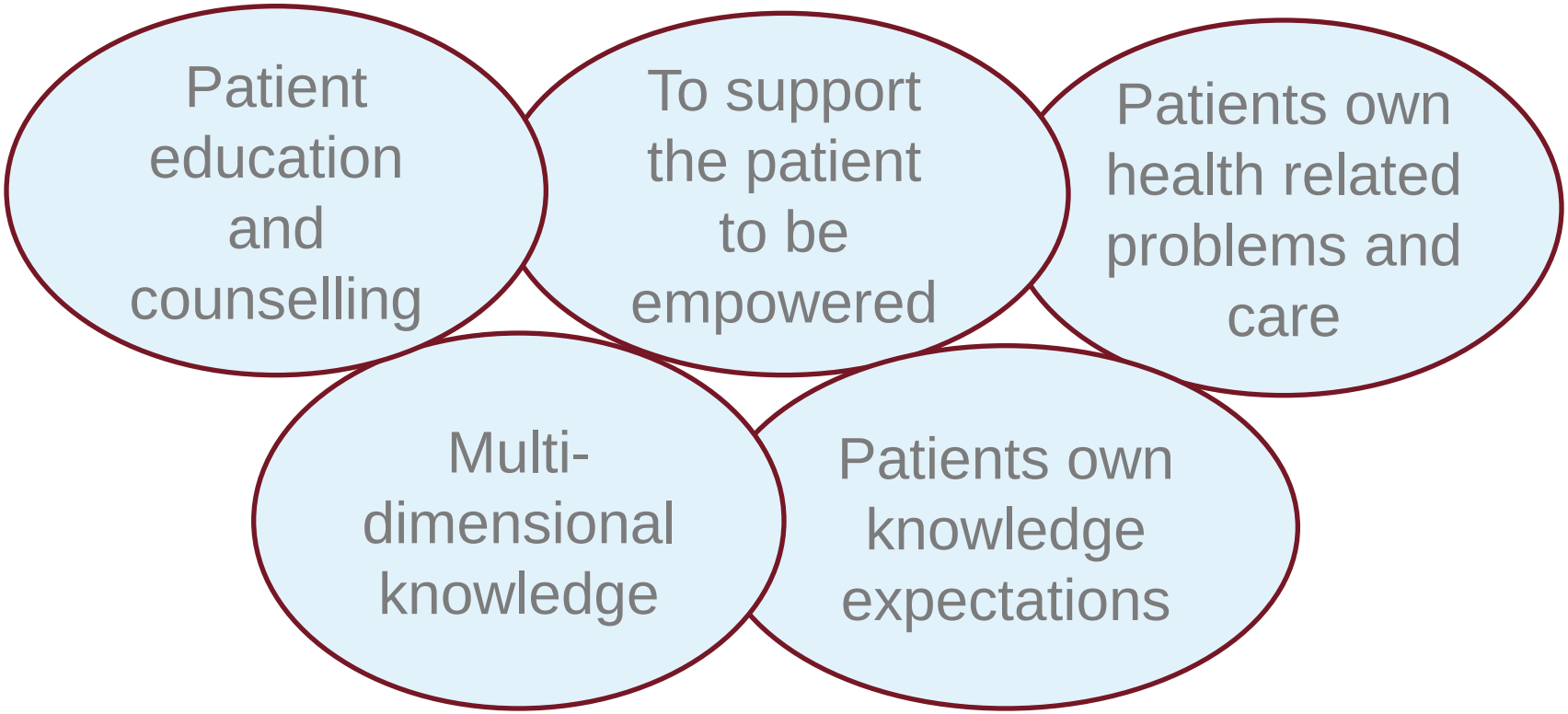
Background

- Empowering patient education (EPE) –research in University of Turku/Faculty of medicine/Nursing Science-department

http://www.utu.fi/en/units/med/units/hoitotiede/research/projects/epe/Pages/home.aspx



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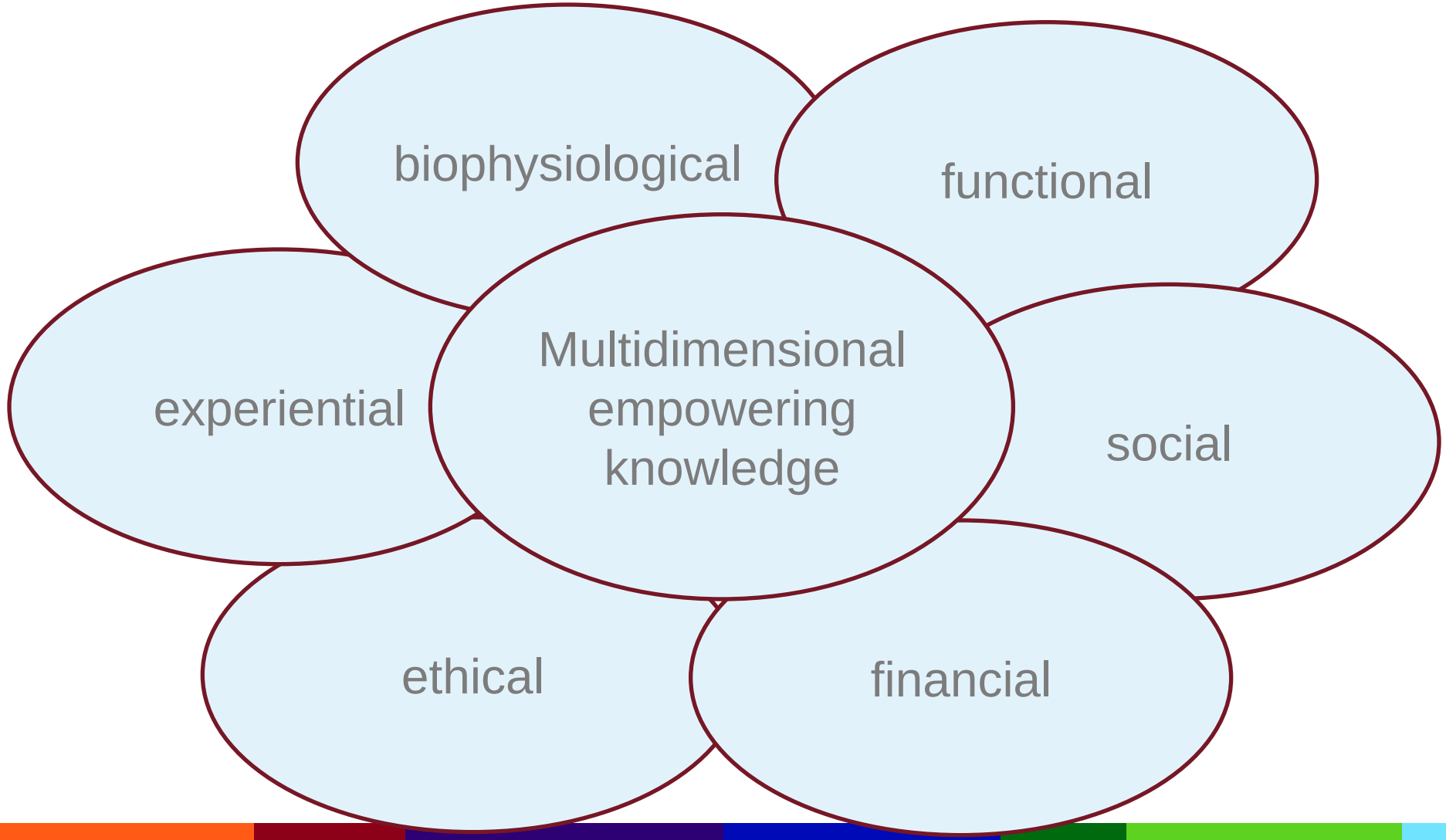
Background

(Leino-Kilpi et al. 2005, Johansson et al. 2007, Siekkinen et al. 2008, Heikkinen et al. 2008, Ryhänen et al. 2012)



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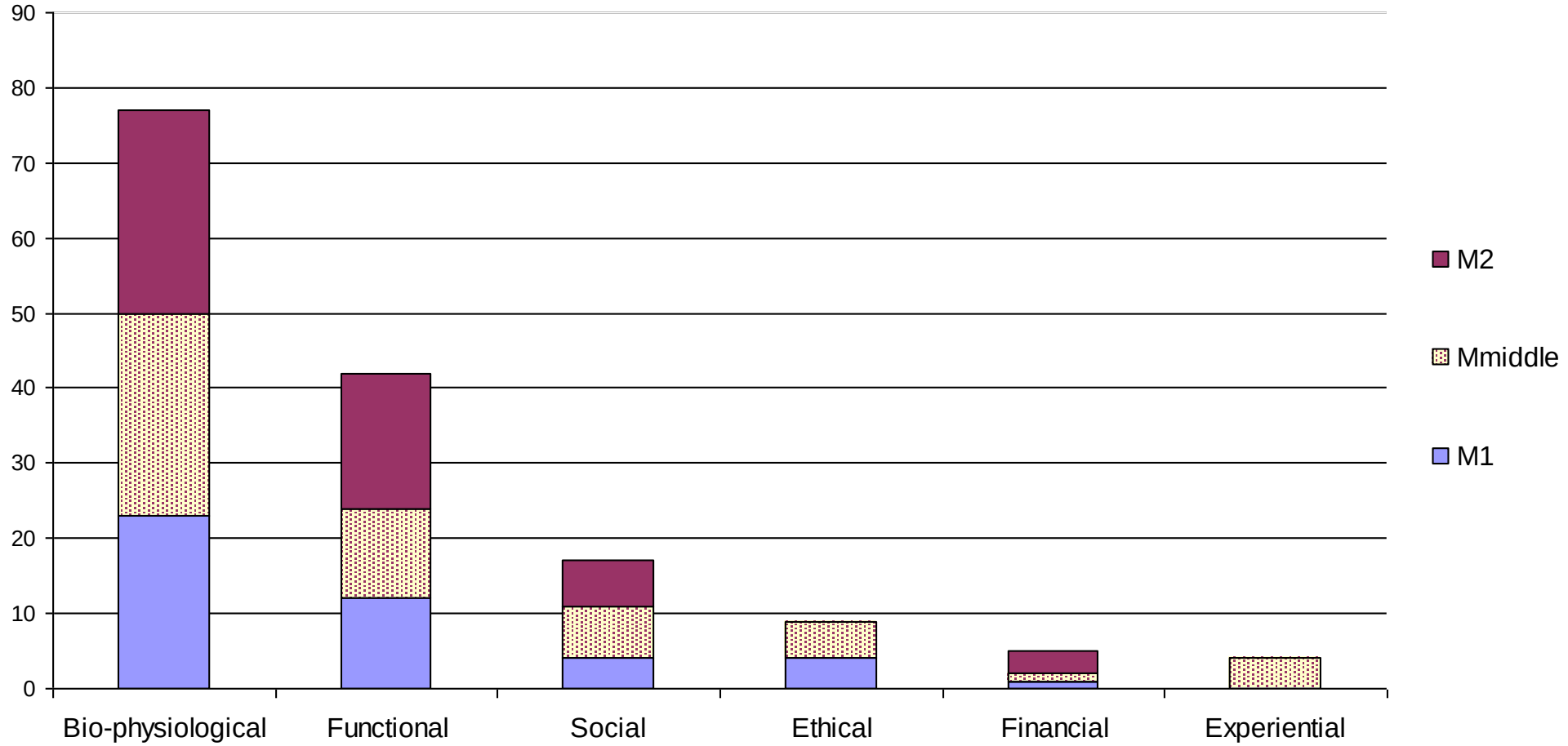
Background

- Multidimensional knowledge expectations among cancer patients in radiotherapy

(Siekkinen et al. 2008)



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Feedback

- Feedback is defined as

"information about the result of the performance and this is often about a consultation and/or skill that has been performed by the learner and observed by the teacher" (van de Ridder et al. 2008)

- Feedback is given
  - Informally by face-to-face
  - Formally after response a knowledge test

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Feedback…

- Feedback generated through Internet is called e-feedback
- The e-feedback is defined as

"a message electronically generated response to a learners's action" (Mason & Bruning 2003)

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Feedback…

- Advantages to receive e-feedback through Internet
  - The ability to provide
    - Immediate knowledge
    - Unbiased “
    - Accurate “
    - Non-judgmental “
  - The feedback is irrespective of
    - Learners characteristics
    - The nature of the response

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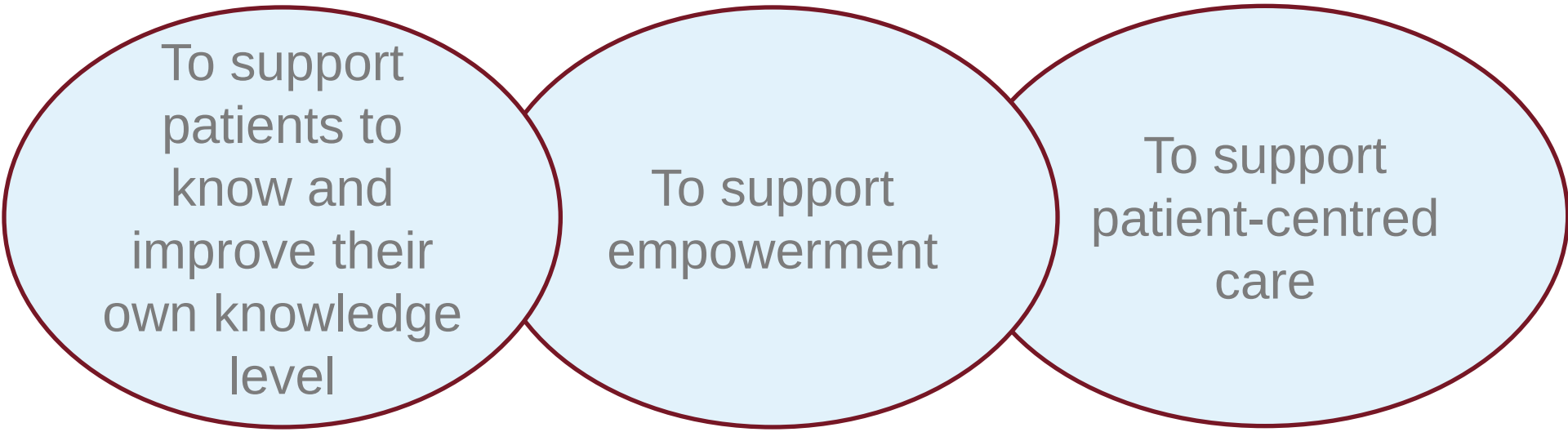
Use of e-feedback

after a knowledge test in patient education

- In patient education,

  the e-feedback after response to the knowledge test is seen as a facilitator
  (Funnell 2004, Anderson & Funnell 2010)



- Lack of studies in RT setting

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Earlier studies

Use of e-feedback in patient education in cancer care setting

- Different approaches
  - Using computer for office-based patient education (Wofford et al. 2005)
  - Using interactive, computer-based patient education programs (Fox 2009)
  - Using multidimensional approaches of different programs (Kuijpers et al. 2013)
  - Lack of studies in RT setting

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Earlier studies

Use of e-feedback in empowering patient education

(Kuijpers et al. 2013 , review; patients with chronic illness)

1) Interventions:

Questions and answers provided, and completed within or after lessons in hospital

Outcomes:

knowledge gain, dietary behaviour, motivation, psychological state, costs, satisfaction, self-care, self-efficacy, decision making, preventive behaviour

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Earlier studies

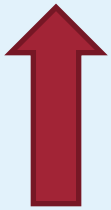
Use of e-feedback in empowering patient education

(Kuijpers et al. 2013)

2) Interventions:

- e-Feedback followed after self-monitoring, based on uploaded individual data through
  - medical record or
  - medication reminders or
  - tips for overcoming self-care

Outcomes:



self-care, self-efficacy and number of expercises

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The e-Feedback of Radiotherapy (e-Re-Know) - intervention for breast cancer patients

- The e-Re-Know was intended to base on the content of breast cancer patients' knowledge expectations and to implement with e-feedback approach
- It contained RT Knowledge Test and feedback
- Finally, the e-Re-Know consisted knowledge of radiotherapy for breast cancer patients to support empowerment

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The e-Re-Know … development

Content

1. **RT Knowledge Test development**

based on

- the results of literature review of breast cancer patients' knowledge expectations of RT
- expert reviews of professionals (6+6) and breast cancer patients (5)

2. **e-Feedback knowledge development**

for each item of the RT Knowledge Test

based on

- literature of radiotherapy care and standard patient education material in radiotherapy
- pilot testing was part of the intervention testing (15 patients)

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The e-Re-Know …development

- **Structure** was guided by
  - the literature of e-feedback approach
    - elaborated e-feedback after responding the knowledge test explaining the correct answer and providing relevant knowledge to inspire learners understanding
  - the literature of knowledge test development
    - was designed to be well-constructed and easy to answer true/false format

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Study design

- Randomized controlled trial
- Breast cancer patients in the RT
  - 65 intervention group/63 control group
- Outcomes
  - cognitive i.e. knowledge level
- Measurement
  - before first RT session and 3 months after final RT session
  - RT knowledge test
- Hypotheses
  - Patients who received the e-Re-Know - intervention before RT period will have higher knowledge level than patients in the control group

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The e-Re-Know -intervention

Content:

e-Re-Know consisted 28 items

- Biophysiological knowledge:
  - 7 items on RT process
  - 7 items on possible side-effects
- Functional knowledge:
  - 7 items on side effects and self-care
  - 7 items on and life-styles/daily life and RT

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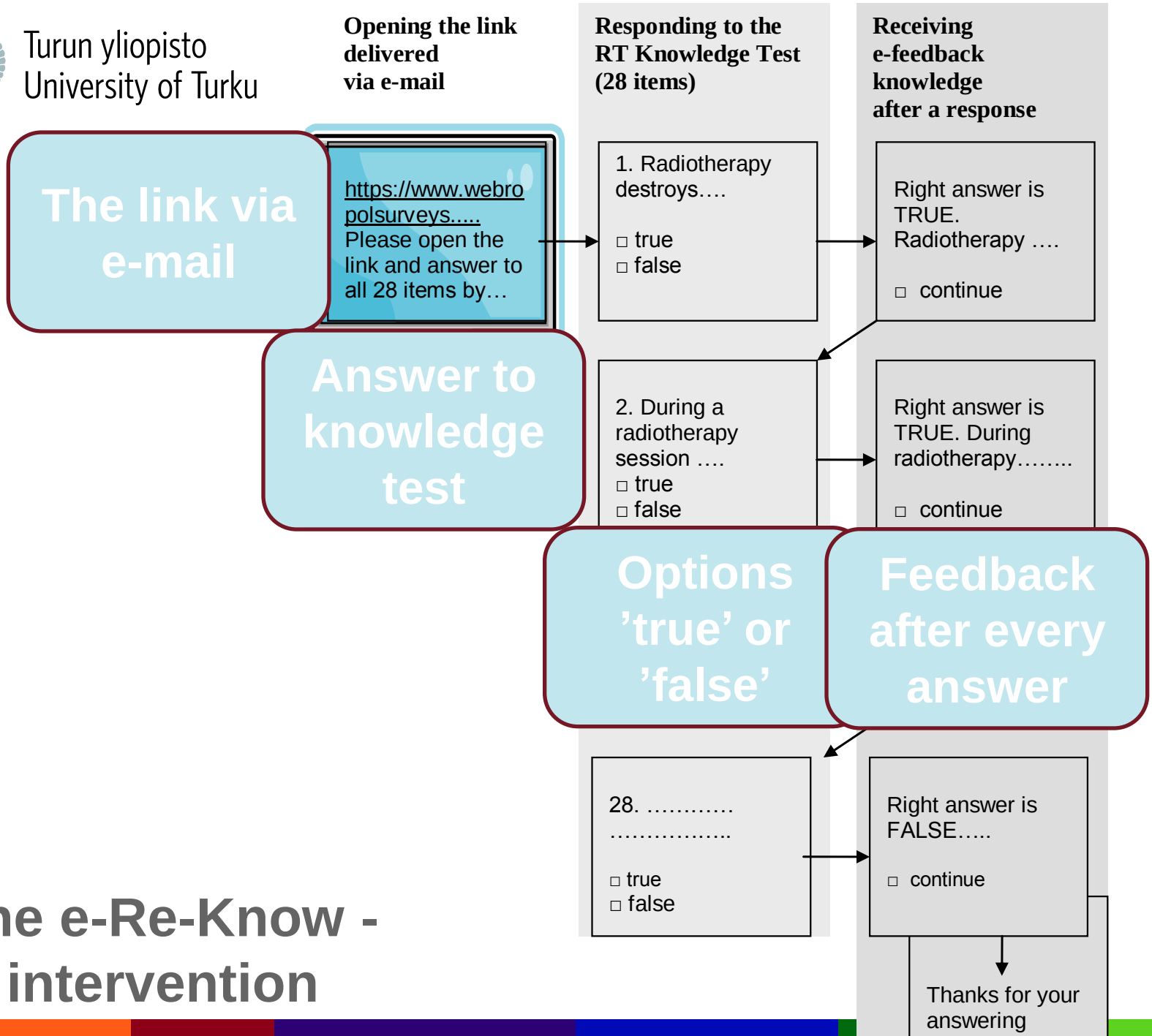
The e-Re-Know - intervention



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Results

- Change of total knowledge level was significantly higher during follow up in the intervention than in the control group after baseline adjustment
- Especially knowledge level of side effect self-care was significantly increased
- There were significant associations of patient characteristics with knowledge level at baseline and in the change of knowledge level
- None of the interactions between patient characteristics and group on change of knowledge level were significant

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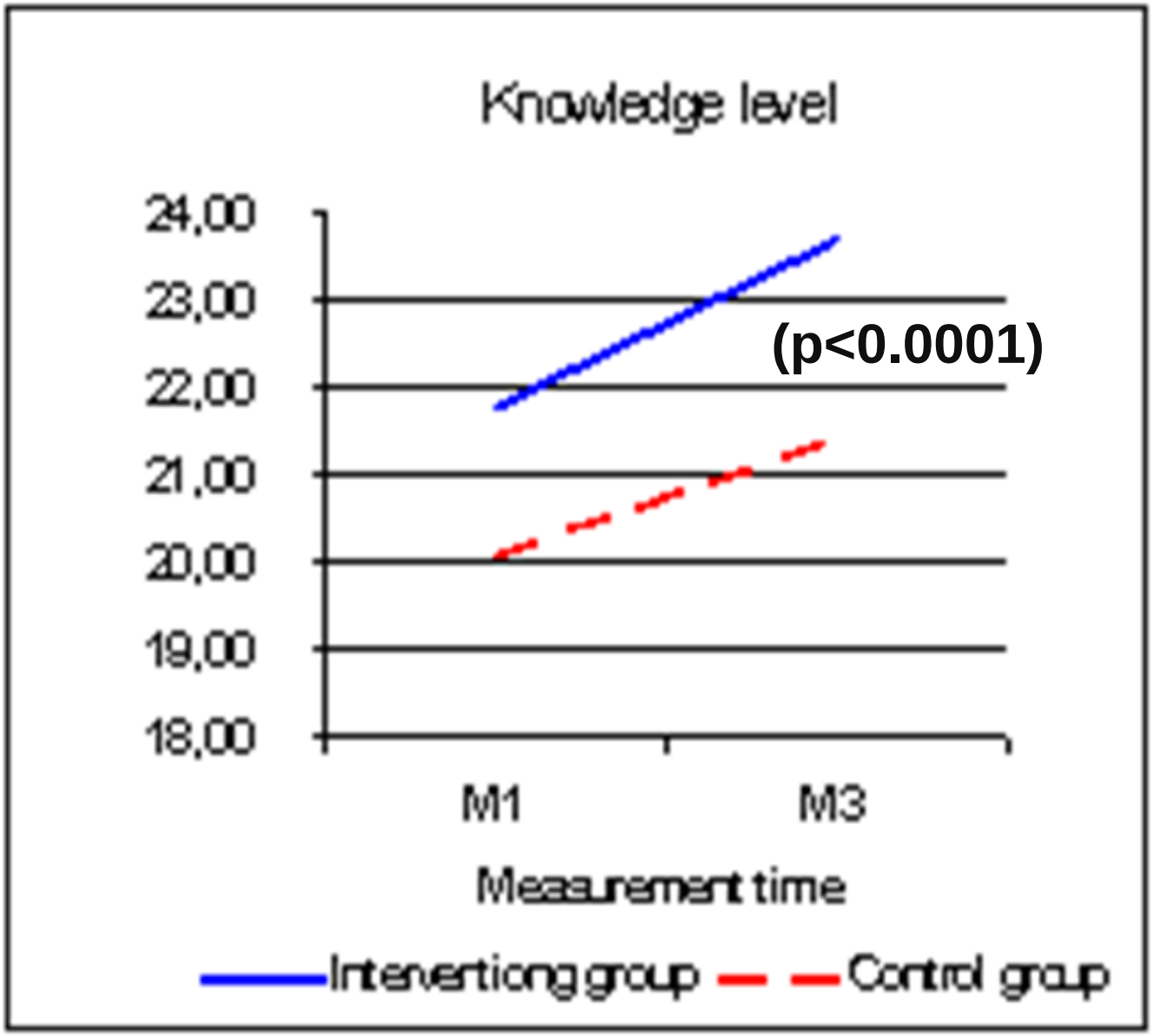
Results



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Results

Variables	Group	Change[a]		*P*- value
		Mean	95 % CI	Difference
Biophysiological subscales				
RT process	Control	0.3	(0.03, 0.65)	.482
	Intervention	0.2	(-0.07, 0.47)	
Possible side effects	Control	0.1	(-0.27, 0.48)	.803
	Intervention	0.2	(-0.13, 0.46)	
Functional subscales				
Side effect self-care	Control	1.0	(0.68, 1.39)	.018
	Intervention	1.7	(1.28, 2.07)	
Lifestyle and RT	Control	-0.2	(-0.57, 0.23)	.812
	Intervention	-0.1	(-0.46, 0.24)	

Abbreviations: RT, radiotherapy; CI, Confidence interval

[a] over time before commencing first RT to three months after RT period

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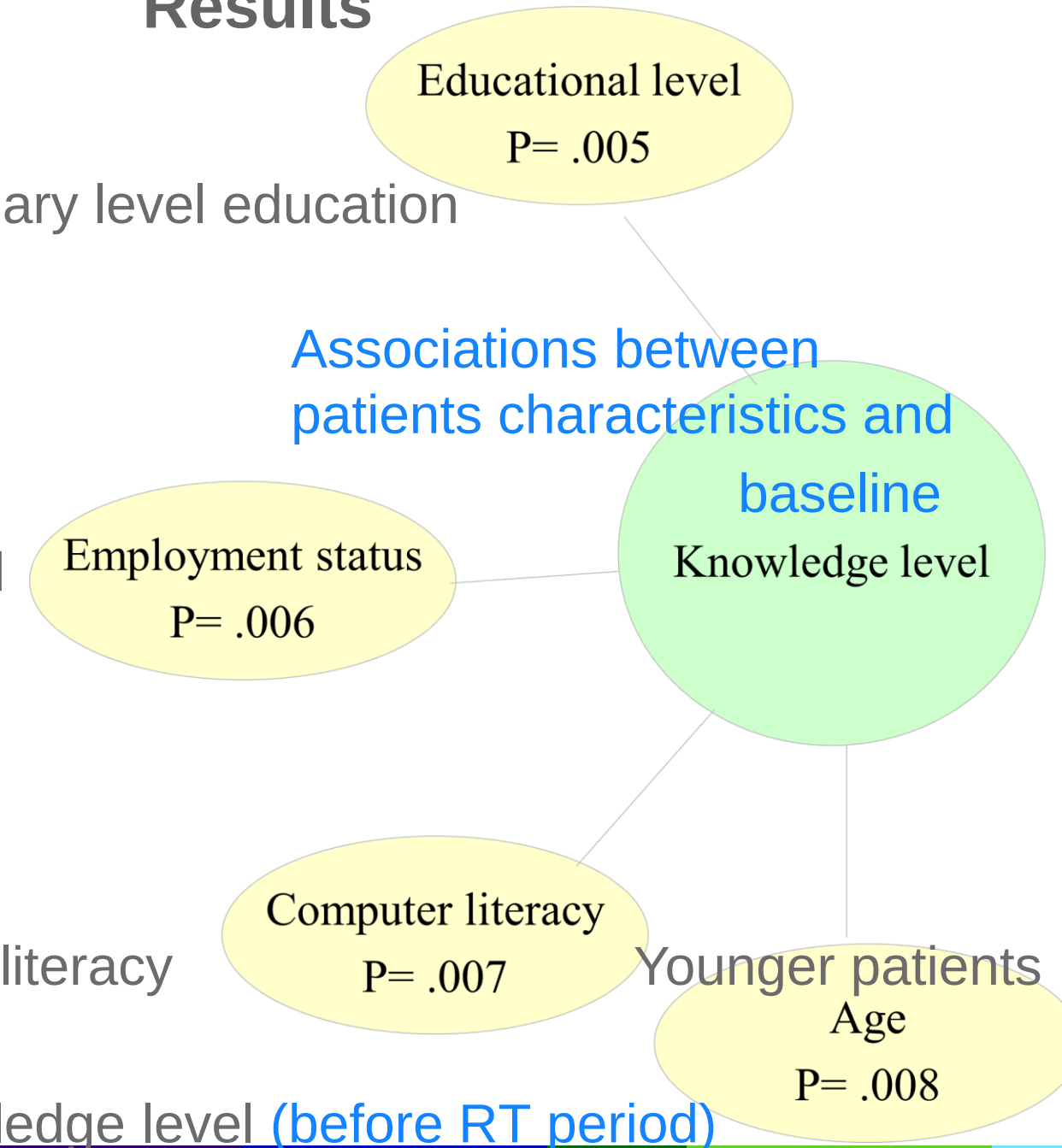
Results

University or secondary level education
vs. no education

Employed vs. retired

Patients having
higher computer literacy

Younger patients



→ Higher knowledge level (before RT period)

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Results

Associations between patients characteristics and change of Knowledge level

However, patient characteristics were not significant modifiers of intervention effect

Patients having higher computer literacy

Computer literacy
P= .024

Younger patients

Age
P= .002

→ Higher increase of knowledge level

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Conclusion

- The e-Feedback after responce to the knowledge test used alone as an patient e-education approach was missing
- The e-Re-Know was effective especially to improve knowledge of side effects self-care
- In line with journals all over the world using narrative by electronic tests in addition to traditional written story would be exploit for patient e-education as well
- New solutions as using voice, picture and interactivity should be developed
- Further testing is needed among other cancer patient groups

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