Organizational attributes of primary care associated with team functioning in Family Health Teams

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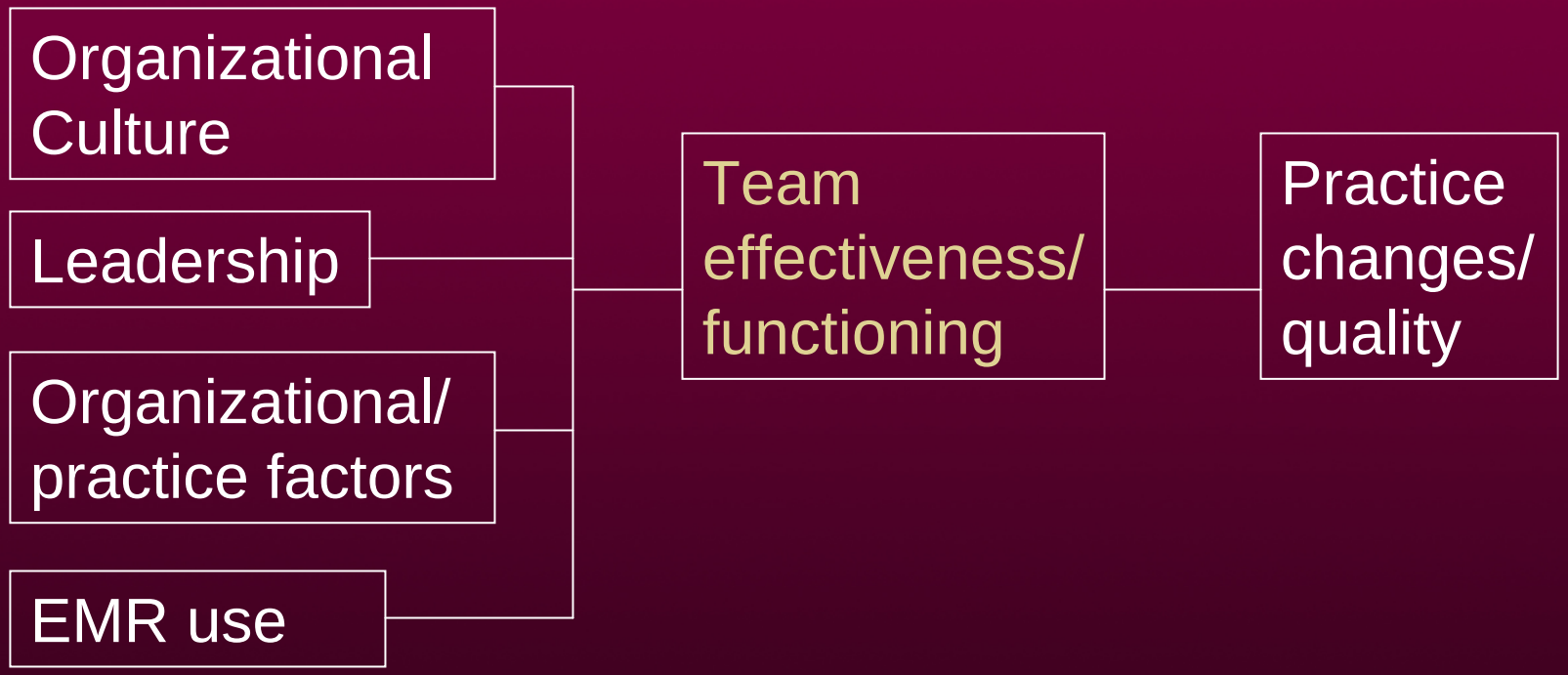
Research Question

- What organizational attributes of interprofessional primary care contribute to self-assessed team functioning in Family Health Teams in Ontario?

Rationale

- Interprofessional primary care new in Canada
- Interprofessional care can improve quality of care
- Teamwork is an intermediate outcome between organizational culture and quality improvement changes (Shortell S., 2004)
- Team climate in health care teams has been used to predict outcomes of health care professional retention (Kivimaki M, 2007), job satisfaction (Harris, 2007) and quality of care (Bosch M, 2008; Hann M, 2007; Proudfoot, 2007; Campbell, 2001)
- Not all studies show association between teamwork and quality-different methods, definitions
- Teamwork is dependent on many interpersonal and organizational factors

Framework



Shortell et al, 2004 Med Care

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Primary Outcome

- Rating on “Team Climate Inventory” (Anderson & West)
- Constructs of vision, participative safety, support for innovation, and task orientation
- Not true ‘effectiveness’ but an intermediate to effectiveness/quality of care
- FHTs are new and we should not expect to see changes in team effectiveness reflect changes in patient outcome in under 3 years

Team Climate Inventory

Scale	Description
Participation in the team	
Information sharing	Degree to which information is shared
Safety	Degree to which one is willing to take risks
Influence	Degree to which decision-making is collective
Interaction frequency	Less or more interaction than average
Support for innovation	
Articulated support	Degree to which innovative activities are encouraged
Enacted support	Degree of practical support for the team
Team Objectives	
Clarity	Degree of clarity of team objectives
Perceived value	Degree to which objectives are perceived to be of value
Sharedness	Degree of agreement about team's objectives
Attainability	Degree of belief that team objectives are realistic and do-able
Task Orientation	
Excellence	Degree of commitment to high standards
Appraisal	Degree of monitoring and critical appraisal of each other
Ideation	Frequency to which members feel ideas are generated

Independent variables

- Organizational culture
  - *Group* - based on norms and values associated with affiliation, teamwork and participation
  - *Developmental* - based on risk-taking, innovation and change
  - *Hierarchical* - reflecting the values and norms associated with bureaucracy
  - *Rational* - based on efficiency and achievement
- Electronic medical record sophistication and perceptions (adapted from a national survey of electronic health record use in ambulatory care in the U.S.)
- Leadership perceptions (Shortell instrument)
- Team meetings (frequency, purpose, composition)
- Team composition
- Participation in QI/CQI initiatives
- Organizational aspects (e.g. wave of FHT, single or multiple sites, doc funding, number patients rostered, governance)

Leadership Scale

Leadership emphasizes standards of excellence to the staff.
Leadership is sufficiently sensitive to the different needs of team members.
Leadership fails to make clear what they expect from team members. (reverse score item)
The leadership discourages team members from taking initiative (reverse score item)
Team members are uncertain where they stand with the leadership. (reverse score item)
The leadership is out of touch with team members' perceptions and concerns. (reverse score item)
The leadership often makes decisions without input from team members (reverse score item)
The leadership effectively adapts its problem-solving style to changing circumstances

EMR survey

- Use of EMR for: appointments, billing, scanning, internal messaging, prescribing, medication profile, drug interaction checks, generate lab/imaging req, viewing results, point of care evidence-based resources, chronic disease registries, reminders for monitoring/preventive checks, queries

- To what extent does EMR affect your practice? (neg to pos impact)
  - Quality of clinical decisions
  - Communication with other providers
  - Communication with your patients
  - Prescription refills
  - Timely access to medical records
  - Avoiding medication errors
  - Delivery of preventive care that meets guidelines
  - Delivery of chronic illness care that meets guidelines

Survey development

- Published instruments
- Expert panel worked with the authors to develop relevant questions on FHT organization
- Reviewed by 2 family practice managers and a family physician

Methods

- 2 mailings to all staff of participating FHTs
  - Survey of team climate, culture, leadership, EMR use and perceptions to all staff
  - Survey of FHT characteristics to manager
- Analysis predicted score on team climate
  - Multi-level modeling to account for clustering of staff in FHTs

Results

- Recruited 21 FHTs and 628 staff eligible
- Response rate 65.8% (413/628)
  - 45.3% (91/201) for physicians
  - 84.3% (202/249) for allied health professionals
  - 52.8% (94/178) for administrative and executive staff

Characteristics of FHTs

	% or Median (n=21)
Single site (vs. multiple)	47.6%
Number of staff in FHT	median=11 (IQR=23)
Number of physicians in FHT	median=6 (IQR=14)
Number of nursing staff in FHT	median=5 (IQR=3)
Have at least one of: Dietitian Pharmacist Social worker	 61.9 52.3 81.0
Self-reported number of patients/physician	median=1573
Wave of FHT funding 1 (oldest) 2 3 (newest)	 47.6 28.6 23.8
Team Meetings (health care and administrative staff together) At least monthly	66.7
Uses an EMR in place of paper charts with paper charts	 57.1 38.1
Participated in a quality improvement initiative since becoming an FHT	76.2

Detailed EMR responses

Use of EMR capabilities (use some, most or all of the time) among clinician staff	
Messaging system within clinic	92.3 (265/285)
Decision support tools	60.5 (153/253)
Chronic disease registries	53.1 (136/256)
Queries (e.g. by age, disease, medication)	67.9 (190/280)
Clinical notes	94.8 (271/286)
Prescribing	60.6 (168/277)
Generate lab requisition	58.1 (150/258)
Patient problem lists	92.5 (259/280)
Medication list	92.3 (260/280)
Reminders for guideline based care	67.1 (173/258)
Perception of EMR (mean, SD) (all staff) *major negative impact=1 major positive impact=5*	
Quality of clinical decisions	3.9, 0.7
Communication with providers	4.3, 0.7
Communication with patients	3.7, 0.8
Prescription refills	4.4, 0.8
Timely access to medical records	4.2, 0.8
Avoiding medication errors	4.0, 0.7
Delivery of preventive care that meets guidelines	4.1, 0.7
Delivery of chronic illness care that meets guidelines	4.0, 0.7

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Who are the leaders?

- **Mean 2.9 leaders reported**
  - MD 84.4%
  - Nurse 63.3%
  - Dietitian 3.2%
  - Pharmacist 3.2%
  - Social worker 8.0%
  - Executive director 69.1%
  - Administrative 22.6%
  - Clerical 11.4%

Leadership (mean, SD) *lowest=1 highest=5*	3.7, 0.7
Organizational Culture (%)	
Group	68.6 (282)
Developmental	8.3 (34)
Hierarchical	14.4 (59)
Rational	8.8 (36)

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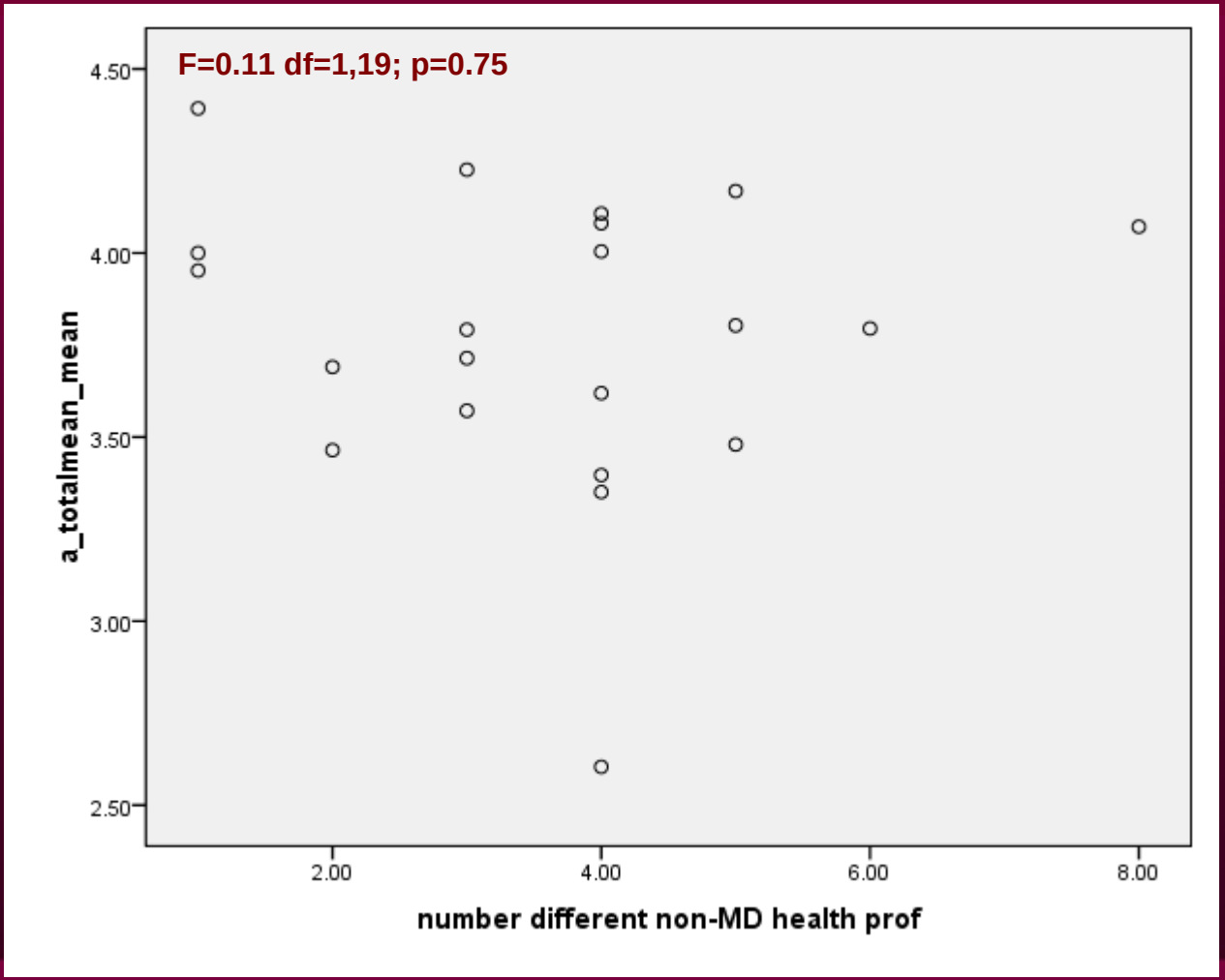
Outcome

	Mean, SD
Overall team climate score (mean, SD) *lowest=1 highest=5*	3.8, 0.6
Participative safety sub-scale	3.8, 0.8
Team objectives sub-scale	3.5, 0.8
Task Orientation	3.9, 0.7
Support for innovation	3.7, 0.8

FHT mean team climate by number of different non-physician health professionals in FHT

Summary:

Mix of health professionals not related to team climate



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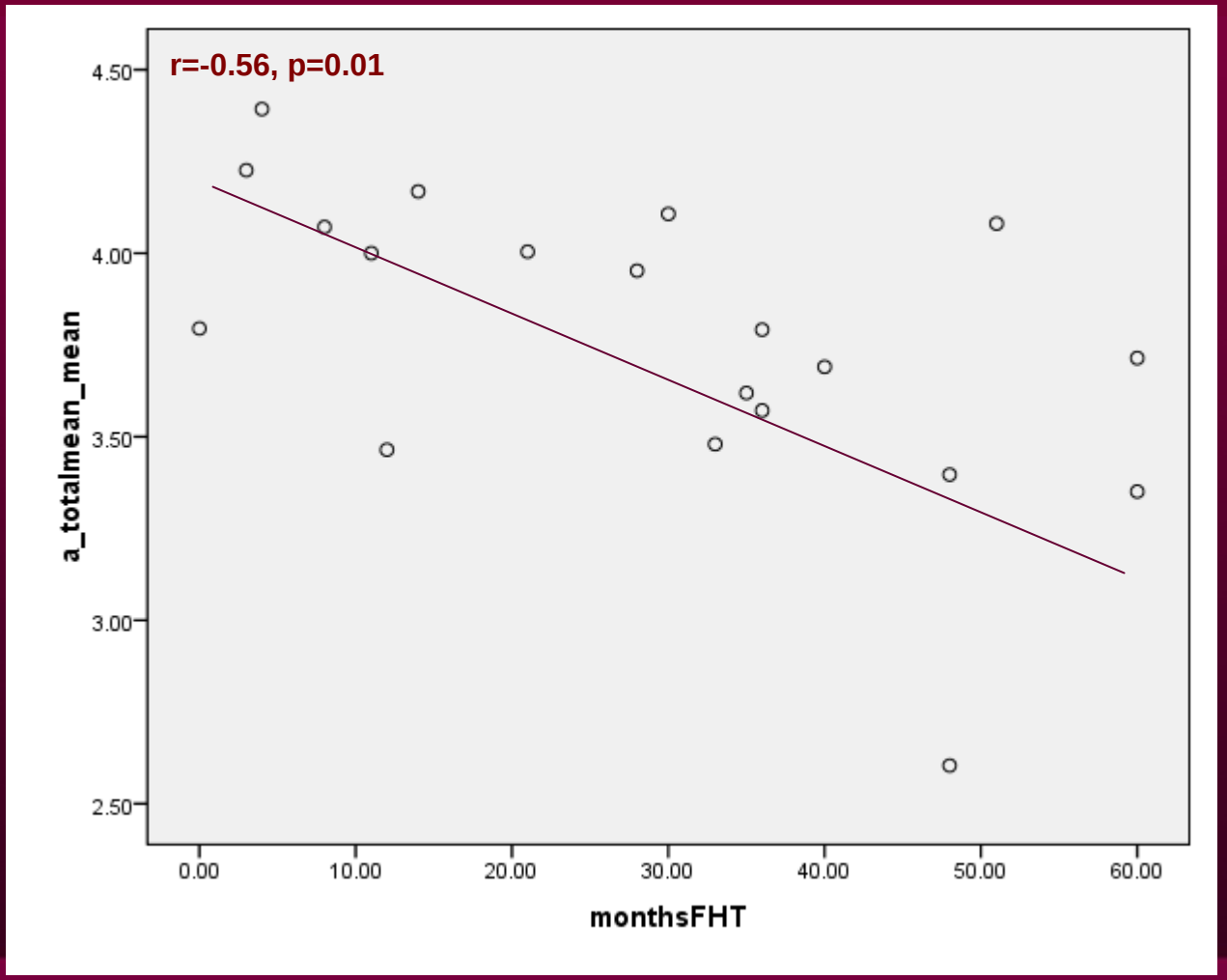
FHT mean team climate by number of months since becoming an operational FHT

Summary:

Longer time as FHT, lower team climate



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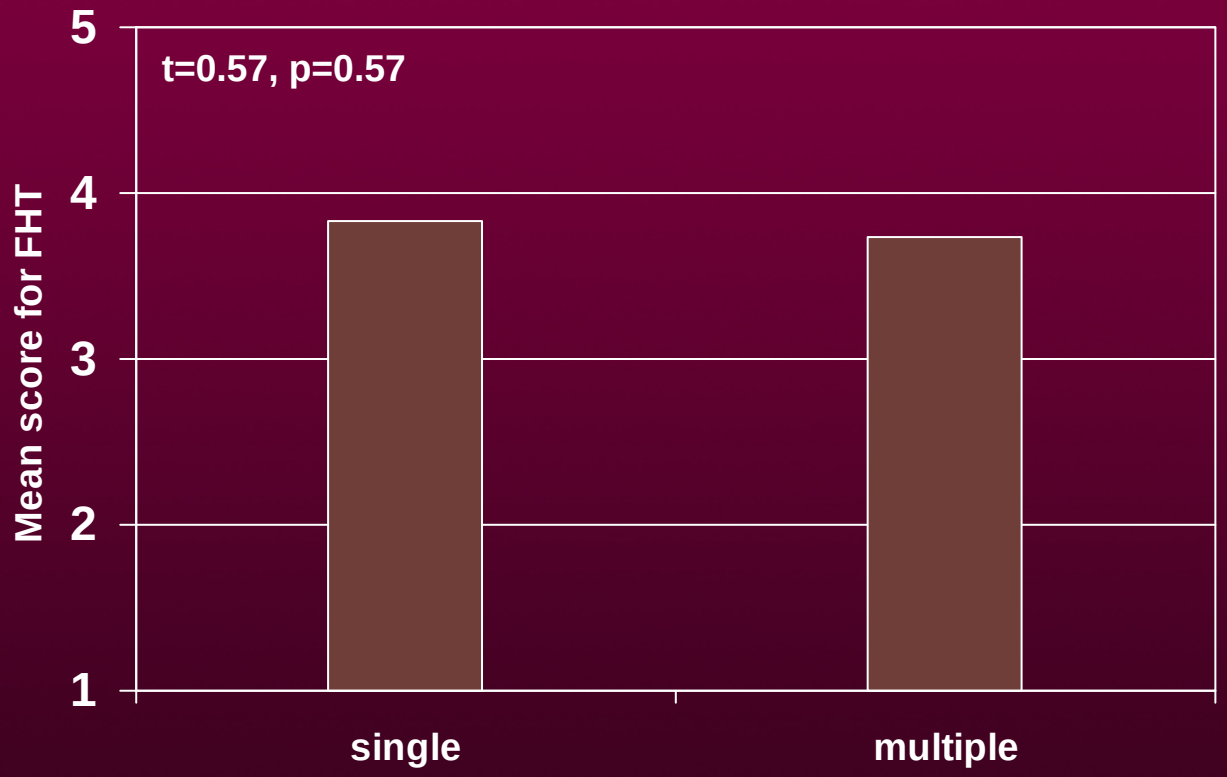
FHT mean team climate by single versus multiple sites

Summary: FHTs in one location or multiple have same team climate



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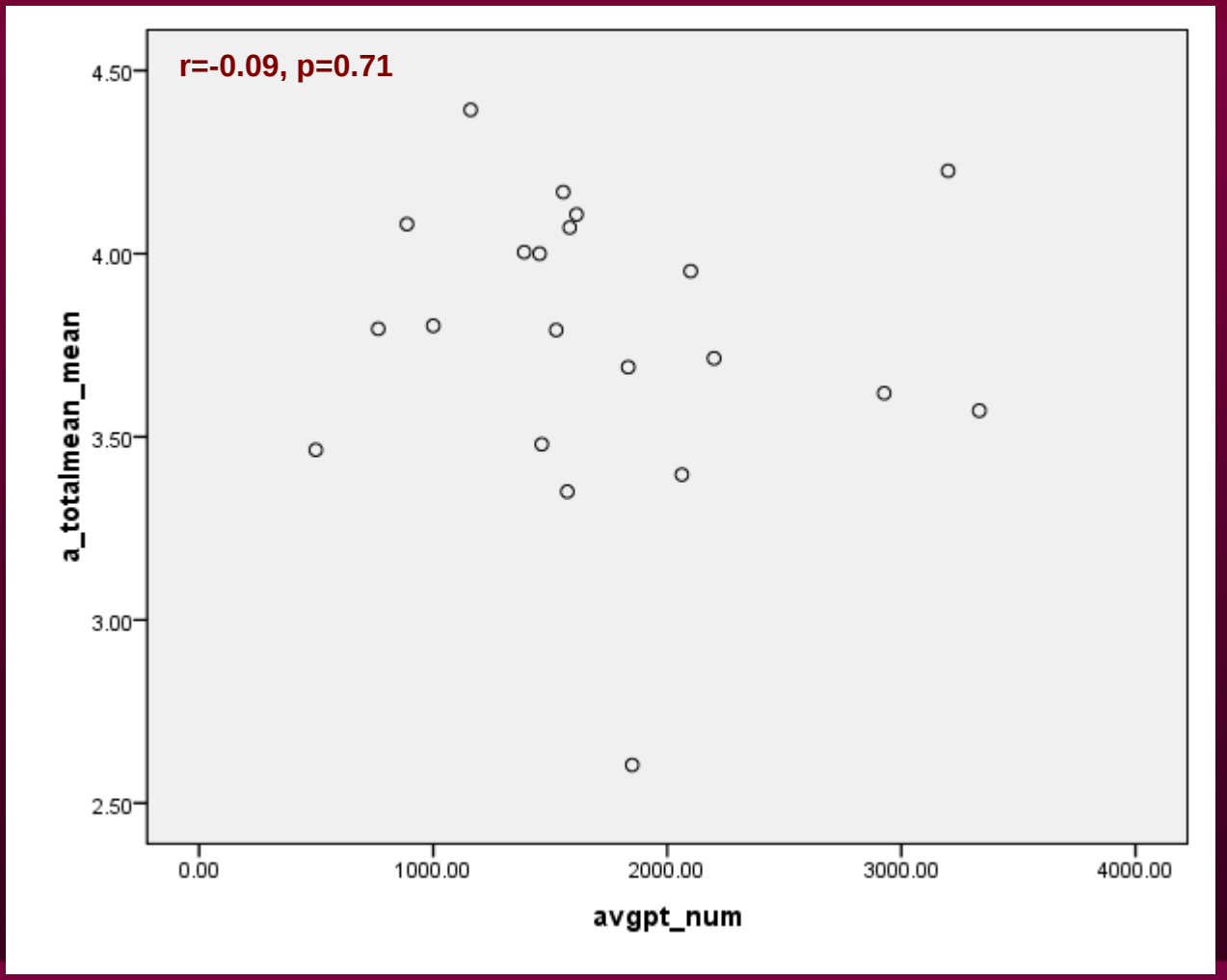
FHT mean team climate by average number of patients per physician (self-report)

Summary: number of patients per doc not related to team climate



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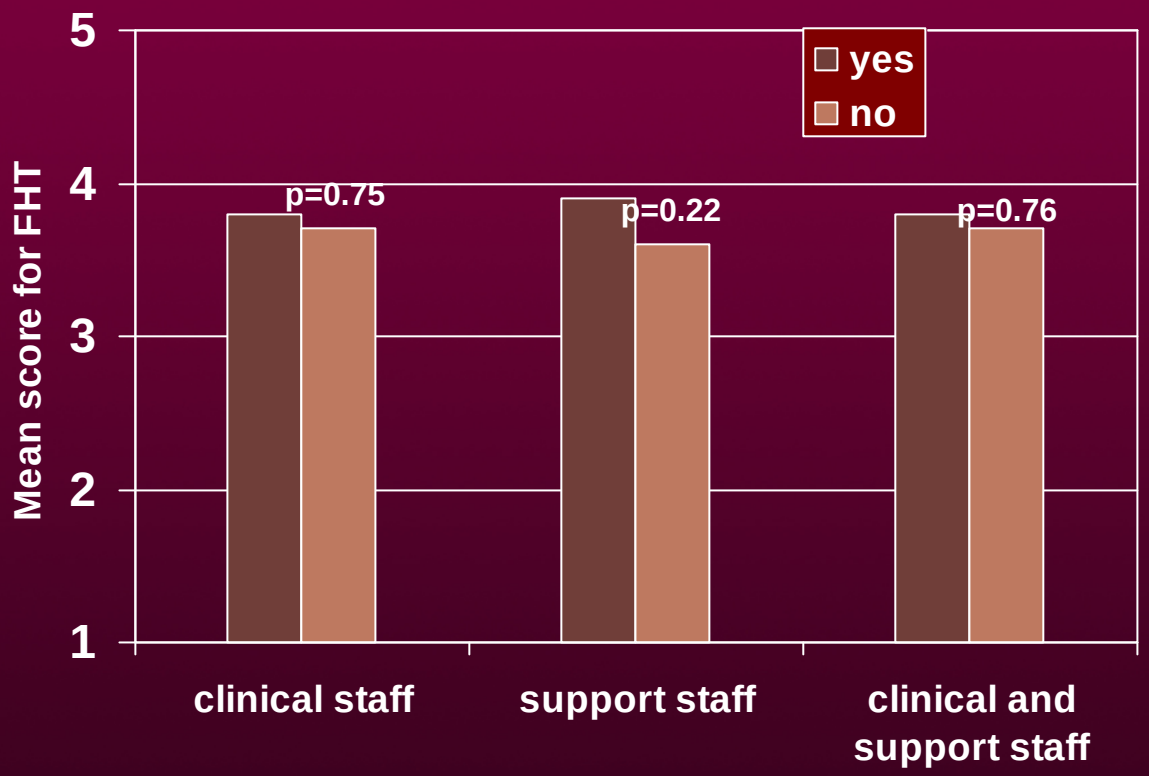
FHT mean team climate by occurrence of <u>at least monthly meeting frequency</u> for clinical and/or administrative purposes

<u>Summary</u>: number and type of meetings not related to team climate



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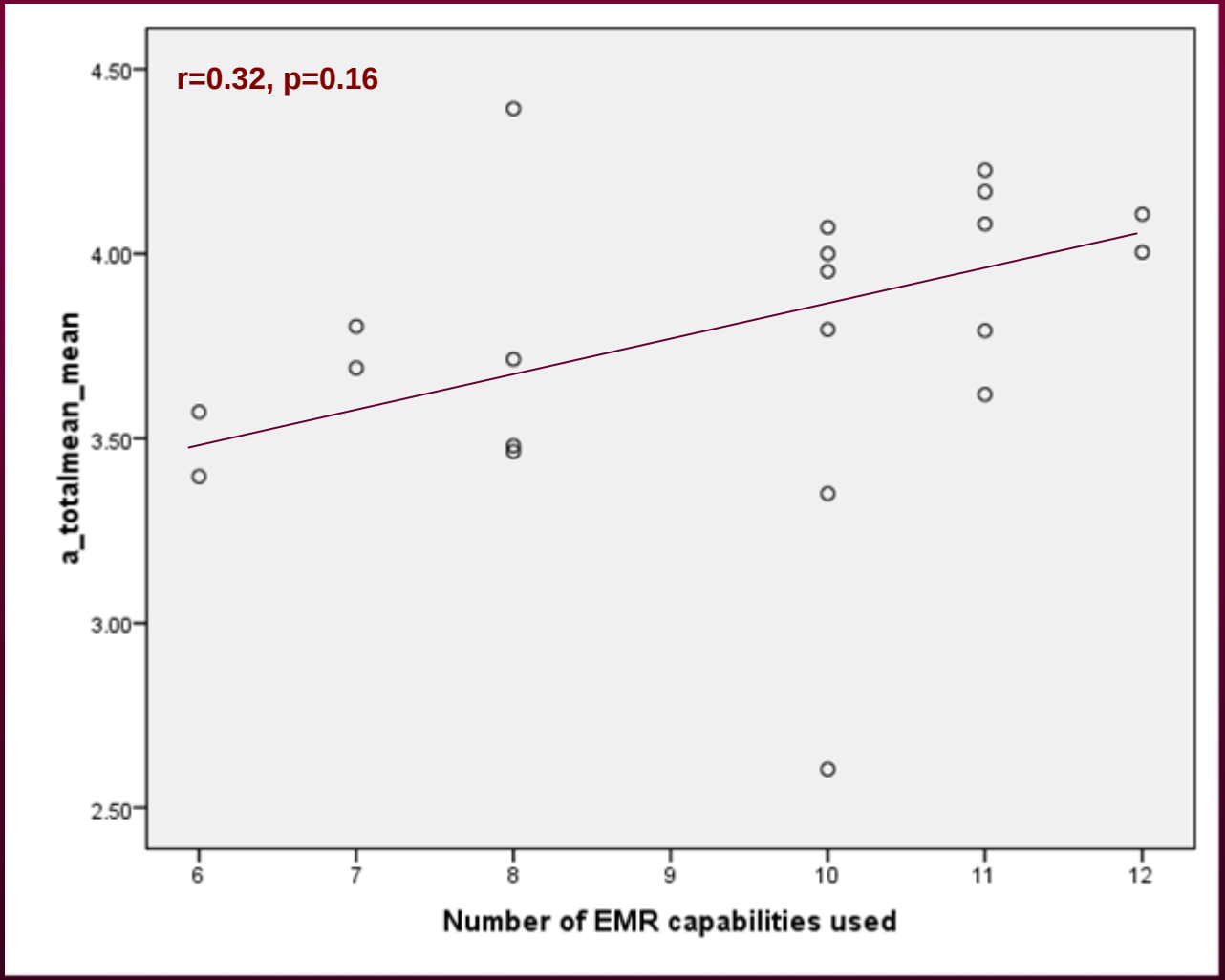
FHT mean team climate by number of EMR capabilities used

Summary: number of EMR capabilities slightly but not significantly related to team climate



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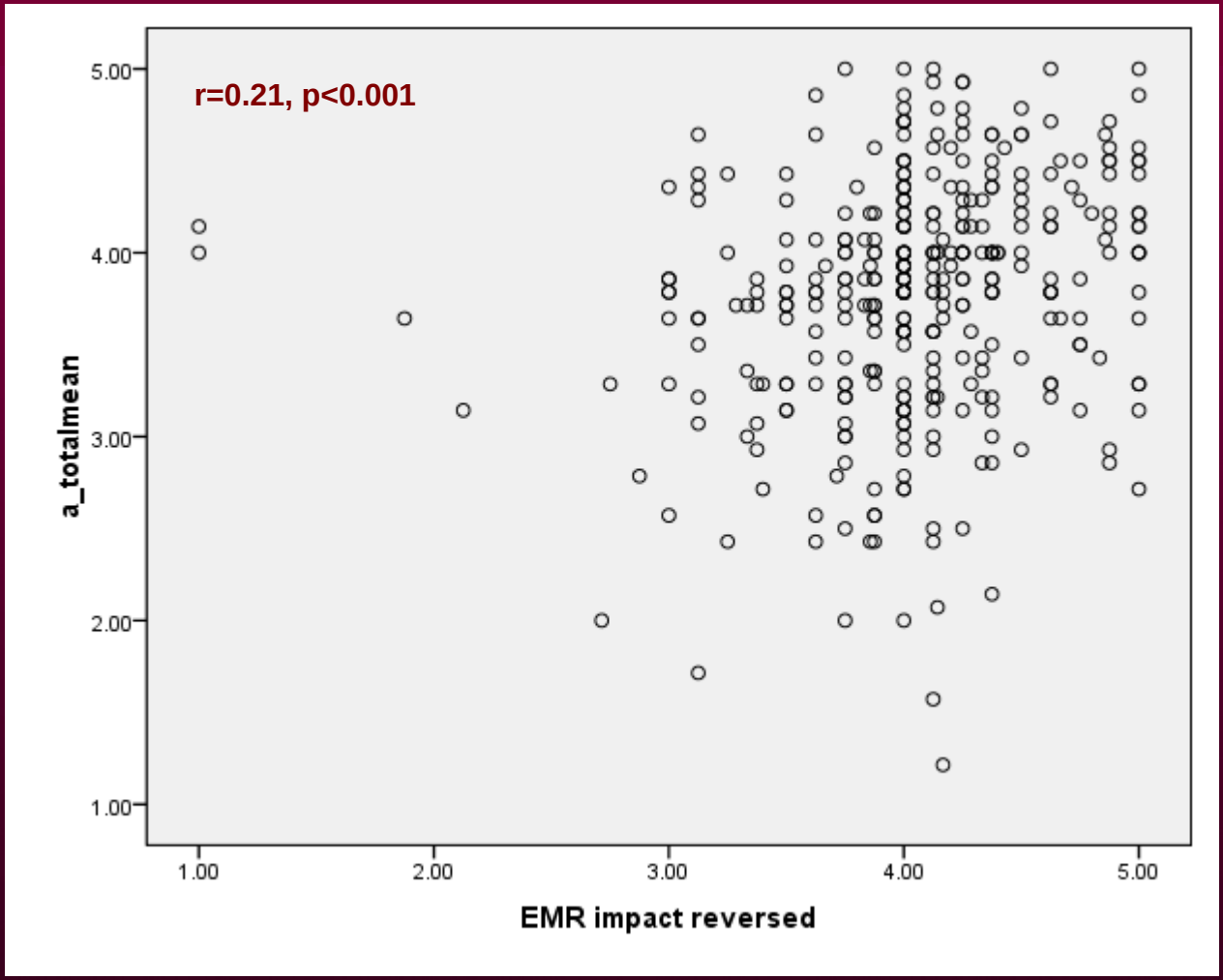
FHT mean team climate by perception of EMR impact on practice (5=highest positive impact)

Summary: higher perceived impact of EMR benefits significantly related to higher team climate



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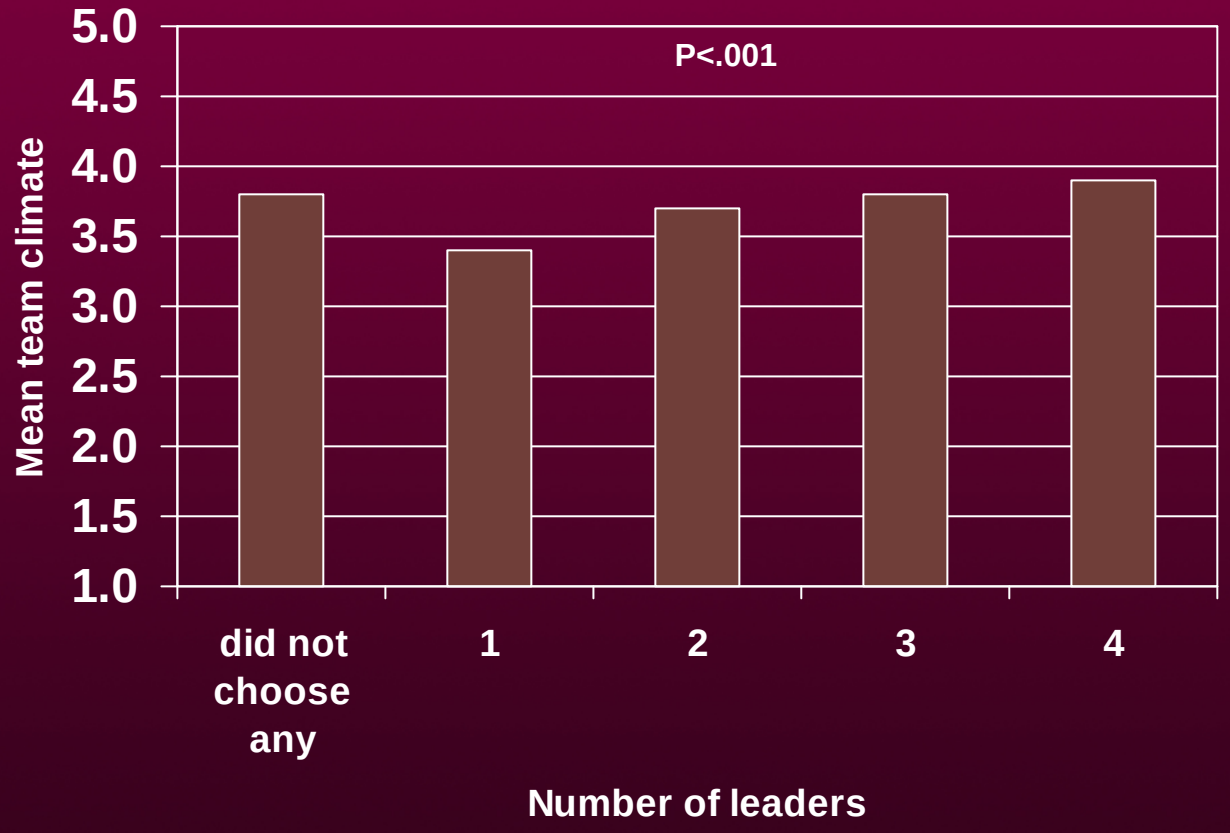
FHT team climate by number of leaders

Summary: lowest team climate when 1 leader identified



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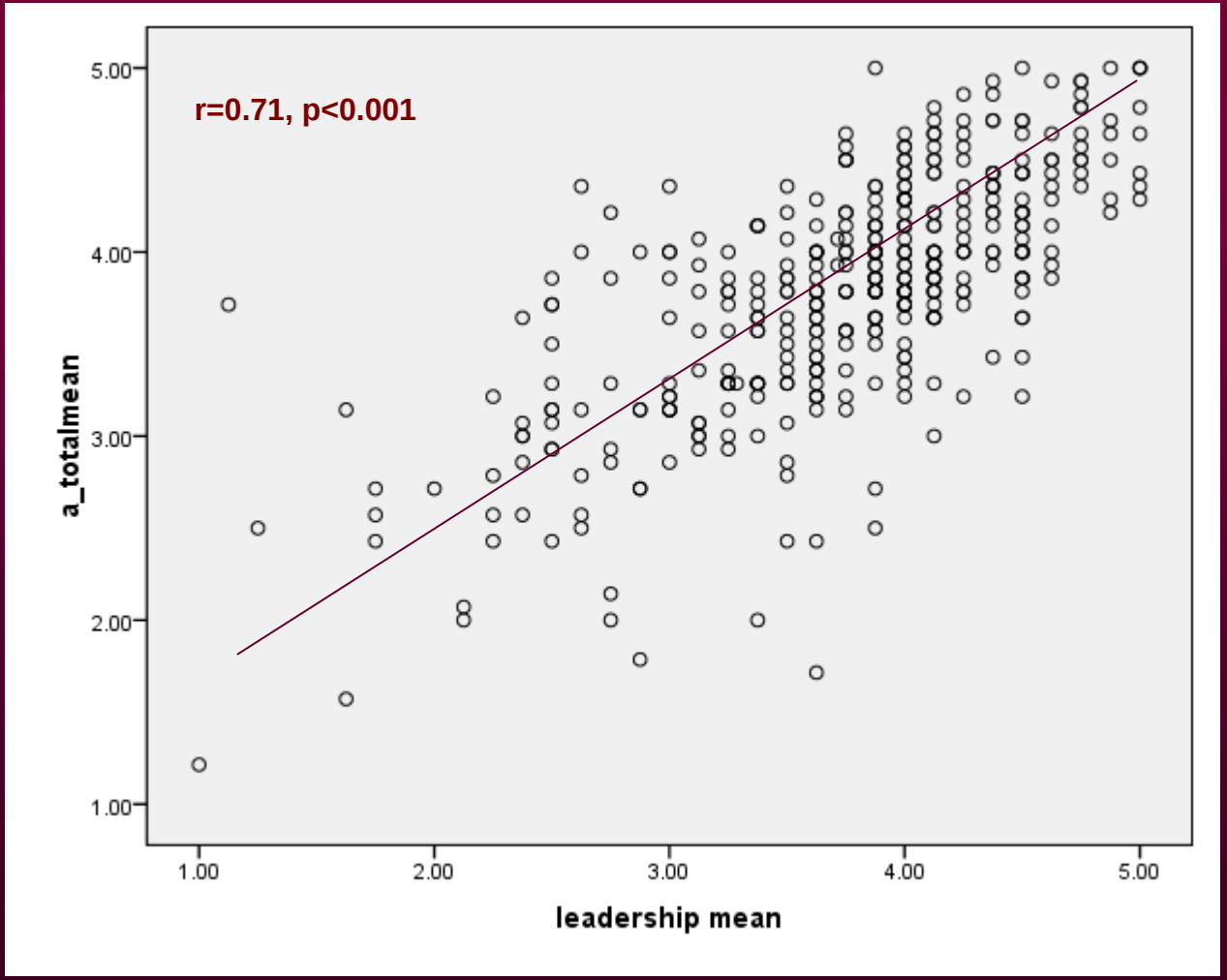
FHT mean team climate by leadership perception scale

Summary: higher perceived leadership score significantly related to higher team climate



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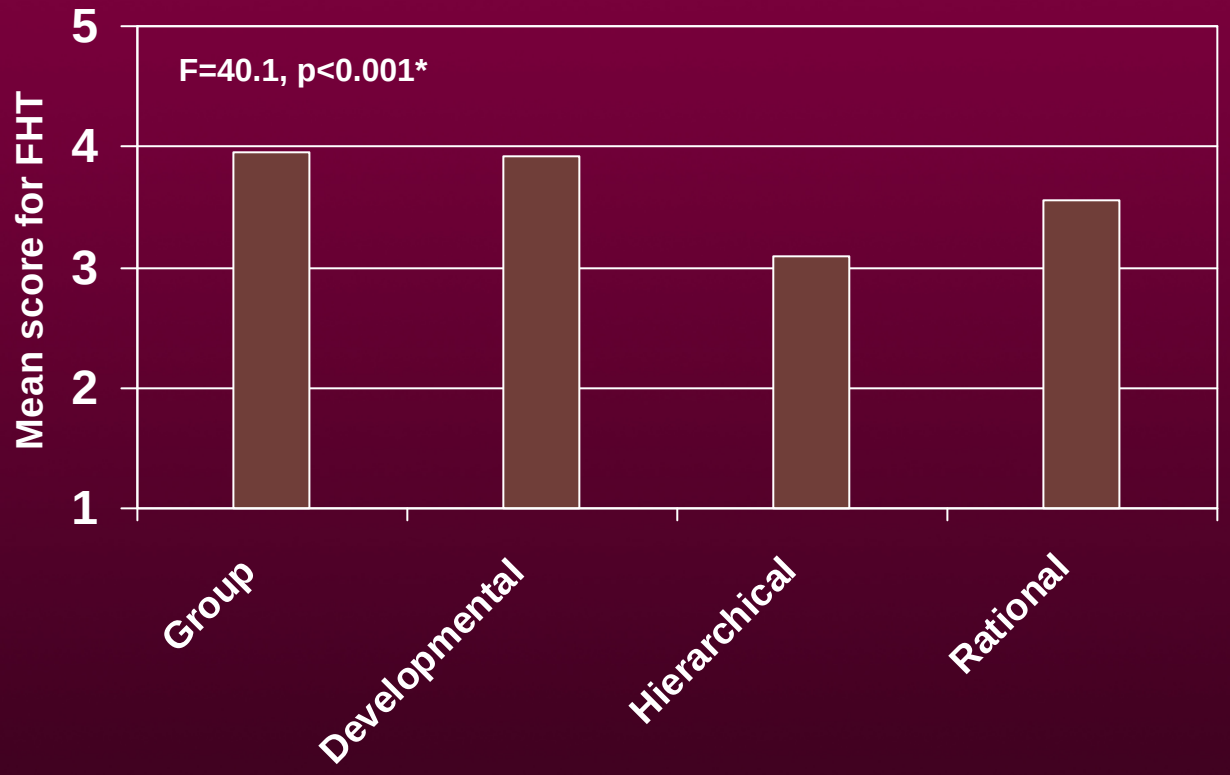
FHT mean team climaet by organizational culture as characterized by team member

Summary: ‘group’ and ‘developmental’ cultures best for team climate. Everything is better than ‘hierarchical’



Post-Hoc Tests for overall score (p<0.05)

Group>Hierarchical
Group>Rational
Developmental>Hierarchical
Rational>Hierarchical

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Putting it all together

	Multiple variable analysis β* (95% CI)	P value
Leadership scale	0.48 (0.40, 0.55)	<0.001
Organizational culture type		
Group	0.04 (0.001, 0.07)	0.04
Developmental	0.05 (-0.005, 0.10)	0.08
Hierarchical	-0.06 (-0.10, -0.009)	0.02
Rational	--	>0.10
EMR capabilities (number)	0.03 (0.003, 0.06)	0.03
Months operational as an FHT	-0.003 (-0.006, -0.0001)	0.04
EMR perceptions	--	>0.10
Number of staff in FHT	--	>0.10
Number of different positions/roles	--	>0.10
Full team meetings at least monthly	--	>0.10
Practice roster size per physician (2000+, 1000-1999, <1000)	--	>0.10
Single site versus multiple sites	--	>0.10
* Only coefficients for variables with P≤0.10 in multiple variable analysis shown in table		

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Limitations

- Low participation rate (21/150 FHTs)
  - Selection bias and more homogeneous perceptions
- Association ≠ Causation

Conclusions

- Leadership (multi vs singular), culture and EMR are associated with higher team climate
- Size, staffing, setting, team meetings are not associated with team climate
- Longer time as FHT- lower rating of team functioning- novelty and expectations?
- No ideal primary care configuration
- EMR, leadership/culture can be modified and enhanced

Practice considerations

- Spreading around leadership roles helpful for teamwork
- Hierarchical culture to be avoided
- Implementing/tailoring an EMR can be a culture changer?
- These learnings may go beyond FHT environment to other practice types

Policy considerations

- No ideal practice configuration for teamwork
- Support for team practices to develop leadership (this will likely go hand in hand with culture)

Research Implications

- Should replicate research in other settings and prospectively before interpreting results too far
- Need more understanding of the human-EMR interface potential
- What does team climate matter?
  - Linking data collected to clinical outcomes through ICES