Who Are the Doctoral Students Who Drop Out?

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XXI April International Academic Conference on Economic and Social Development

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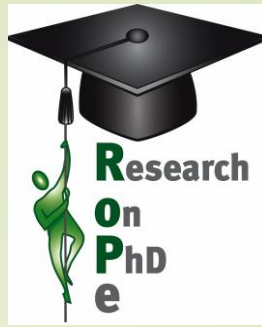# The « *Research on PhD* » project (RoPe)

Content:

➡ Administrative data (2005/2006-2013/2014)

➡ Qualitative interviews

➡ Longitudinal study (2013-2015)

Directors: M. Frenay, O. Klein, B. Galand, A. Azzi.
Researchers: V. Hospel, N. Roland, G. Boudrenghien, C. Devos, M. De Clercq, N. Van der Linden, R. Wollast.

Rates of doctoral completion and dropout

	Frequency	Percent
Success	820	54.3%
Dropped out	**572**	**37.9%**
Still active	117	7.8%
Total	1509	100%

Cohort analysis within a period of 8 years (2005-2006 to 2013-2014) of the two largest universities of the French-speaking Community of Belgium.

Success rates as a function of factors (N = 1392)

	Frequency	Success rate
Gender		
Male	779	60.6%
Female	613	56.8%
Nationality		
Belgian nationals	841	62.5%
Nationals from another EU country	255	56.9%
Non-EU nationals	**296**	**50.3%**
Master grade		
Summa cum laude	150	81.3%
Magna cum laude	456	62.1%
Cum laude	**256**	**49.2%**
Success without honors	**26**	**34.6%**
University		
Same university	745	62%
Different university	**616**	**56%**
Funding		
Fellowship	351	80.1%
Assistantship	170	67.6%
Research grant	308	64%
No- or unknown funding	**563**	**40.3%**

	Frequency	Success rate
Marital status		
Married	376	67.3%
Unmarried	**946**	**53.7%**
Age		
Lower than 26 years old	669	65.6%
Between 26 and 40 years old	**637**	**55.1%**
Higher than 40 years old	**86**	**34.9%**
Research field		
Sciences and technologies	555	68.6%
Health sciences	**278**	**59.4%**
Social sciences	**362**	**49.4%**
Humanities	**197**	**48.2%**
Field		
Same field	1064	61%
Different field	281	54.8%

Prediction of doctoral success/dropout for all variables

Variables	β	P value
Nationality ("Belgian nationals" versus "Non-EU nationals")	-.28	.54
Marital status	**-1.47**	**.00**
Master grade ("high distinction" versus "satisfaction")	-.32	.53
Master grade ("high distinction" versus "distinction")	-.22	.26
Master grade ("high distinction" versus "very high distinction")	**.92**	**.00**
Change of university between undergraduate and doctoral degree	-.16	.48
Age at registration ("less than 26 years old" versus "between 26 and 40 years old")	.22	.29
Age at registration ("less than 26 years old" versus "strictly more than 40 years old")	-.80	.10
Research field ("science and technology" versus "humanities")	**-.73**	**.00**
Research field ("sciences and technologies" versus "social sciences")	-.20	.38
Research field ("science and technology" versus "health sciences")	-.08	.72
Funding ("no-funding or unknown funding" versus "assistant lectureship")	**1.09**	**.00**
Funding ("no-funding or unknown funding" versus "non-university funding")	**1.80**	**.00**
Funding ("no-funding or unknown funding" versus "research project")	**.78**	**.00**
Constant	.70	.02

R^2 = .21 (Cox & Snell), .28 (Nagelkerke). Model $\chi^2(14)$ = 195.791, $p < .001$. Percentage of correct classification = 70.2%. Significant effects are presented in bold
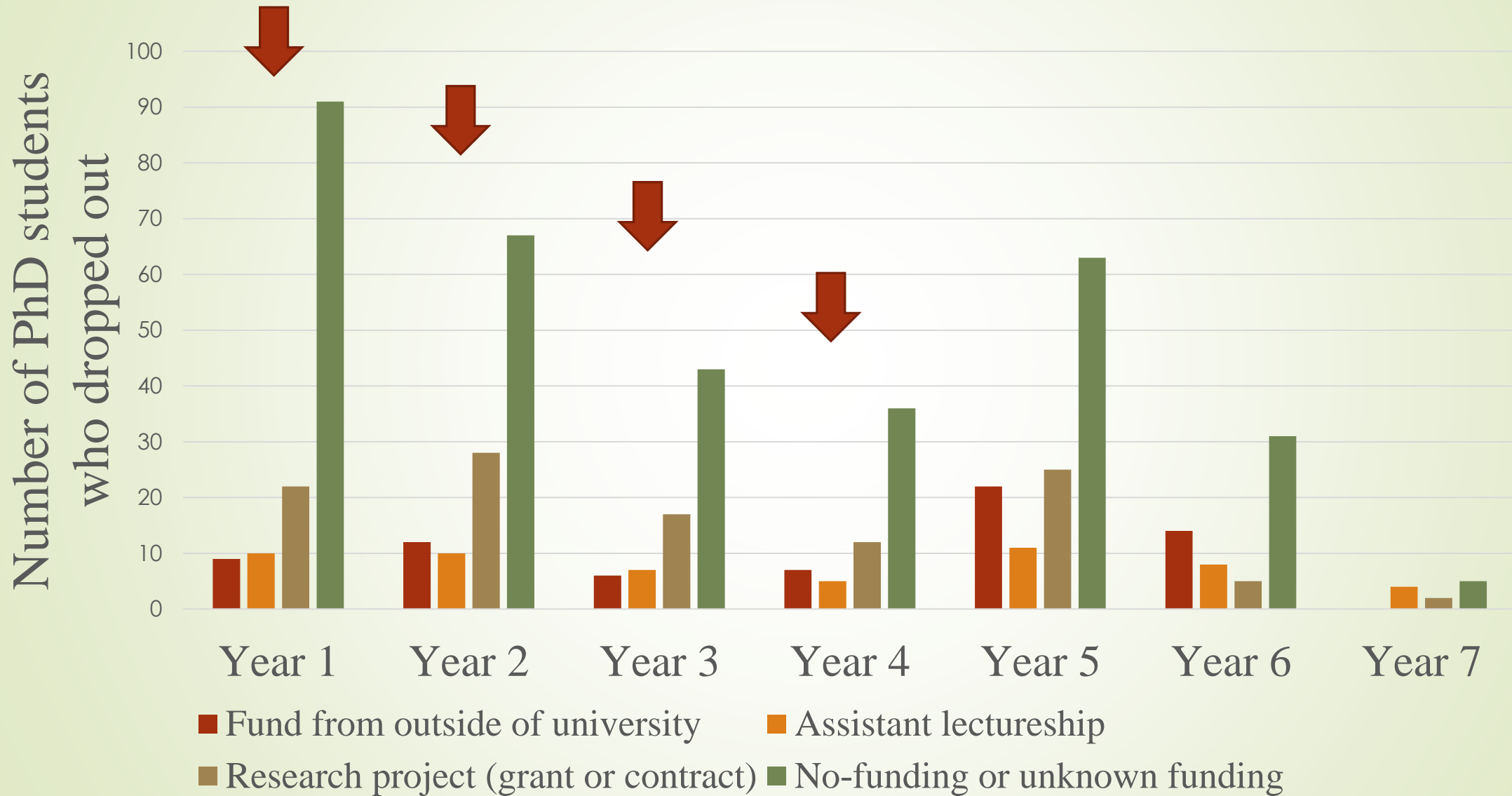
Risk factors accumulated
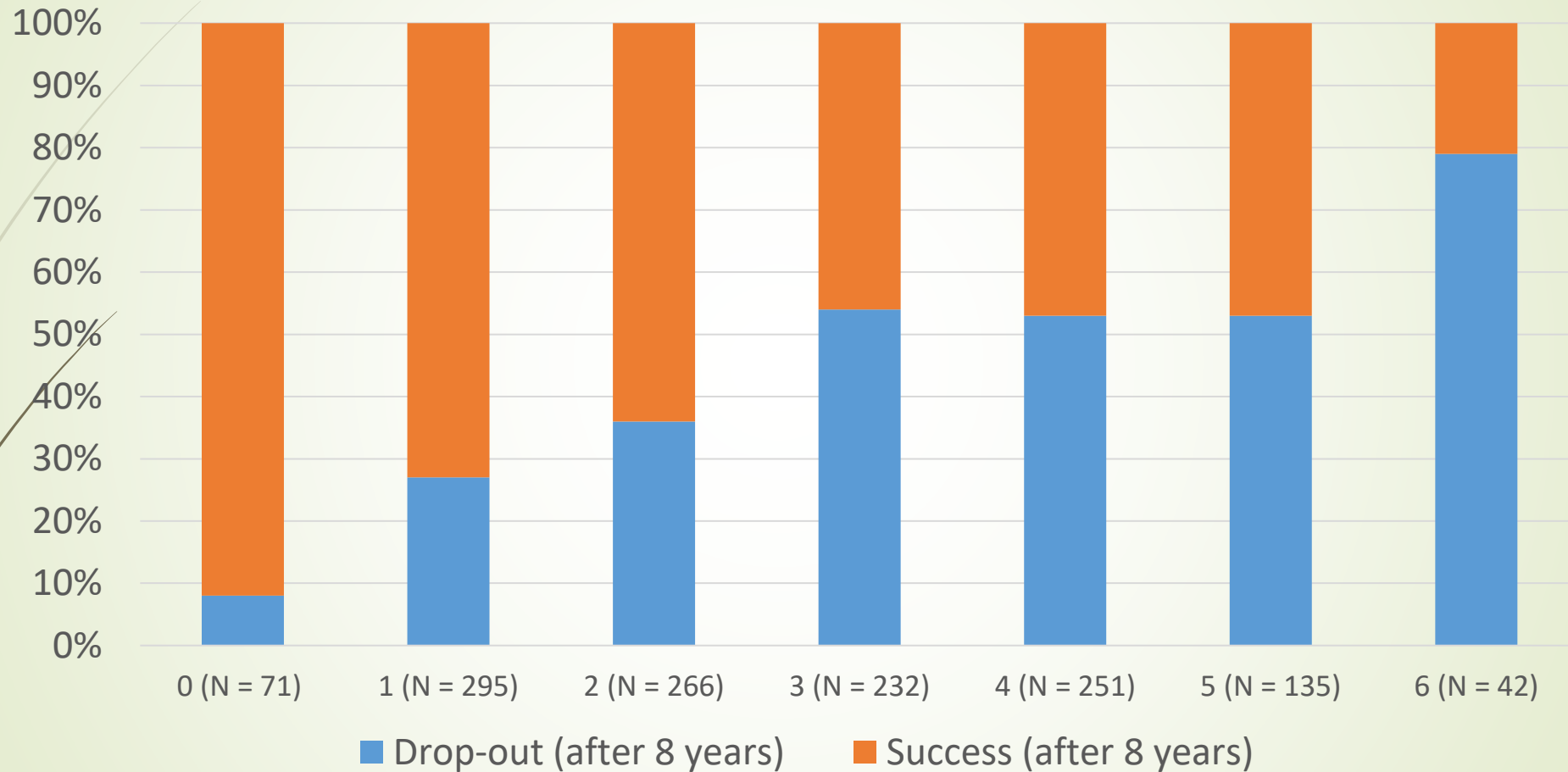
Factors : age at registration, nationality, research field, changing university, marital status and the funding.

Time course analysis

To summarize

➡ Factors associated with the rate of doctoral degree completion:

1. Marital status
2. Field of research
3. Funding
4. Master grade

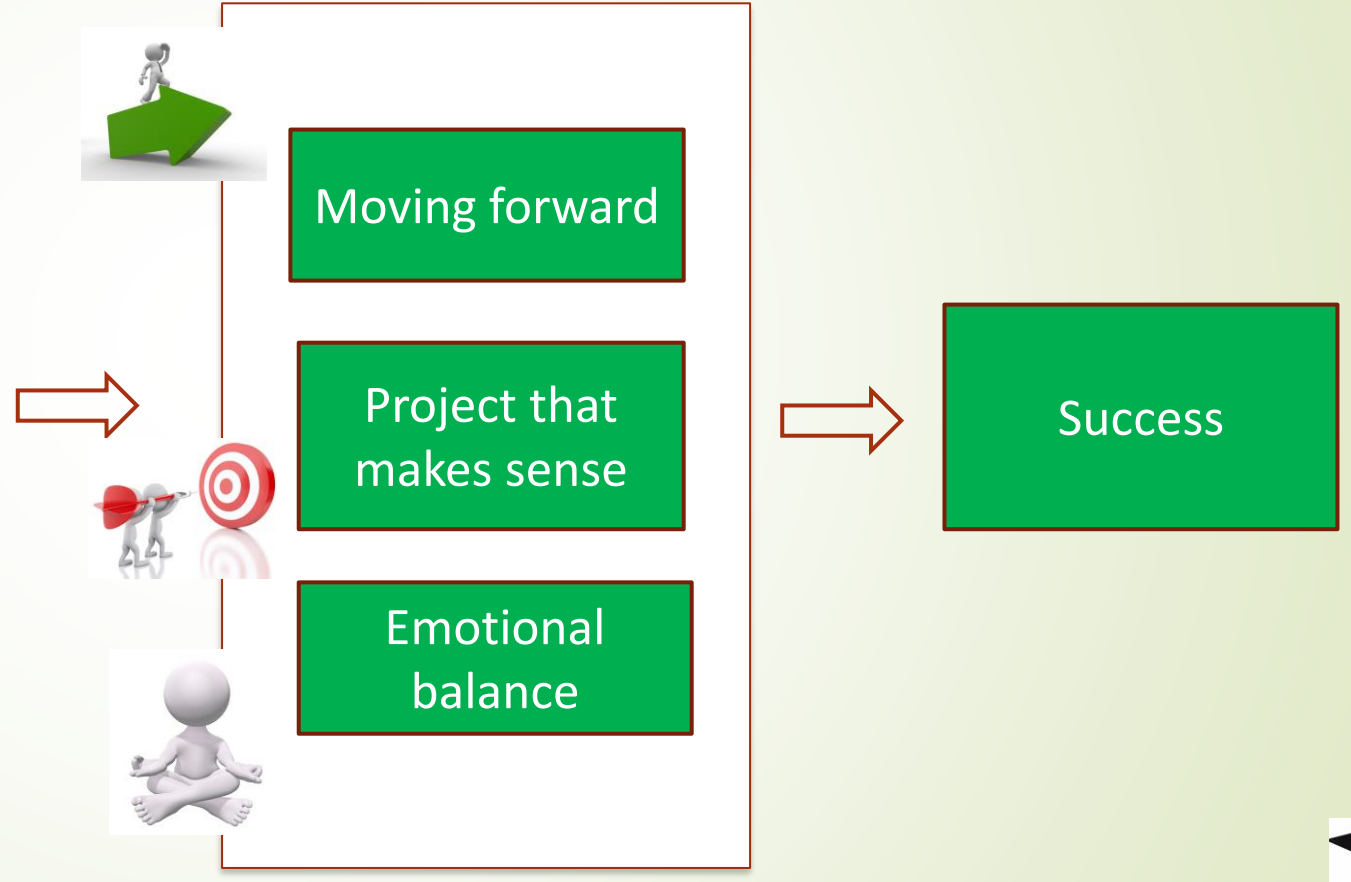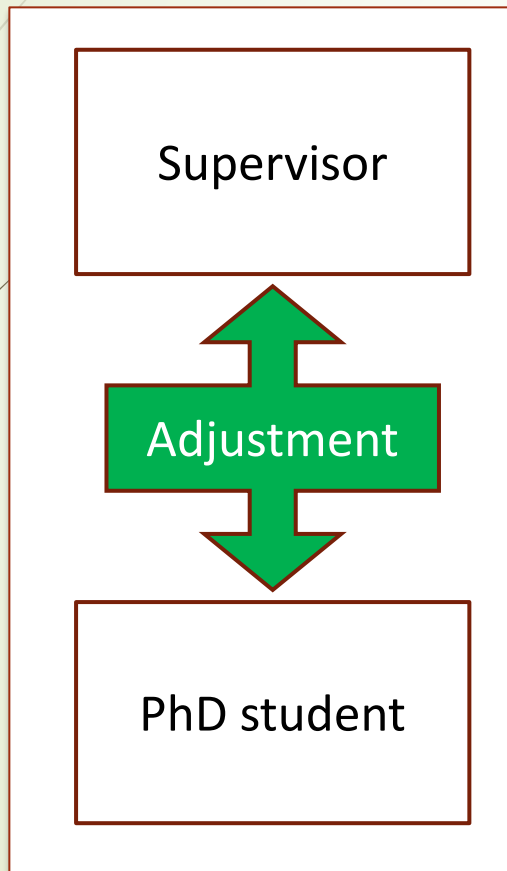➡ Accumulation of risk factors leads to an increase in dropout rates

➡ Importance of time course analysis

➡ Interaction effects

❖ Wollast, R., Boudrenghien, G., Van der Linden, N., Galand, B., Roland, N., Devos, C., de Clercq, M., Azzi, A., Klein, O. & Frenay, M., (2018). Who are the doctoral students who drop out? Factors associated with the rate of doctoral degree completion in universities. International *Journal of Higher Education, 7*(4), 143–156. https://doi.org/10.5430/ijhe.v7n4p143
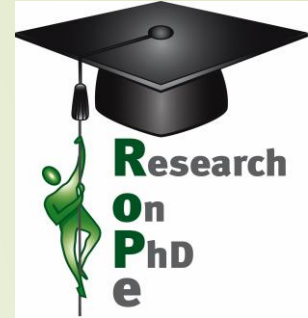
Qualitative Interviews - Doctoral Persistence (1)

Qualitative Interviews - Doctoral Persistence (2)
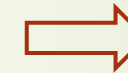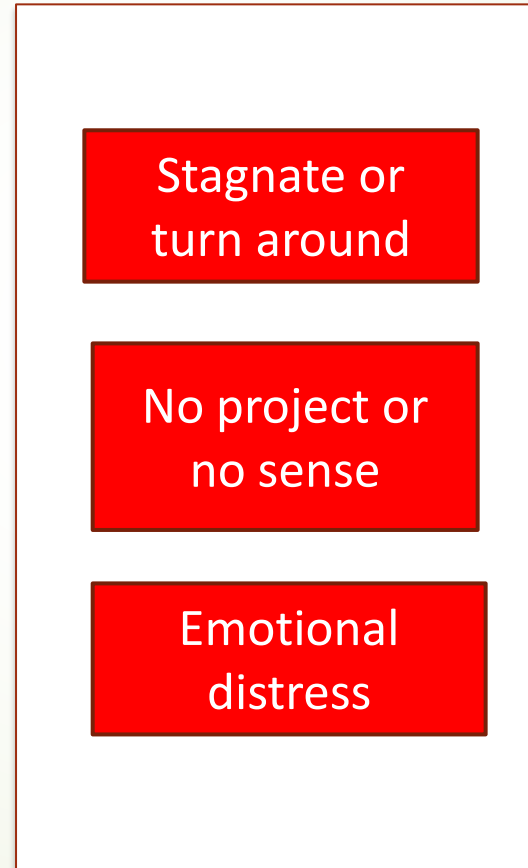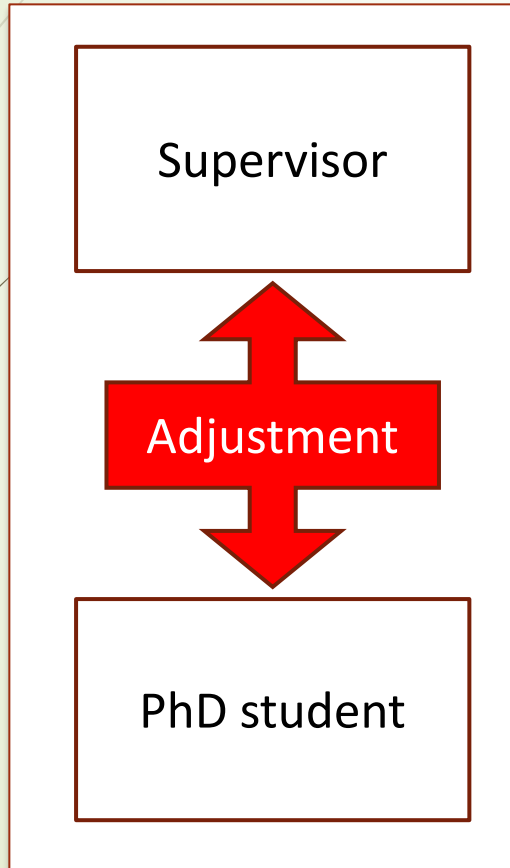
Influence of doctoral supervision on PhD students

Types of support from the supervisor

Structure

Autonomy

Involvement

Emotional well-being

Positive emotions

Negative emotions

Doctoral persistence

Intention to persist

Research On PhD

Population study (*N* = 410 men and 514 women)

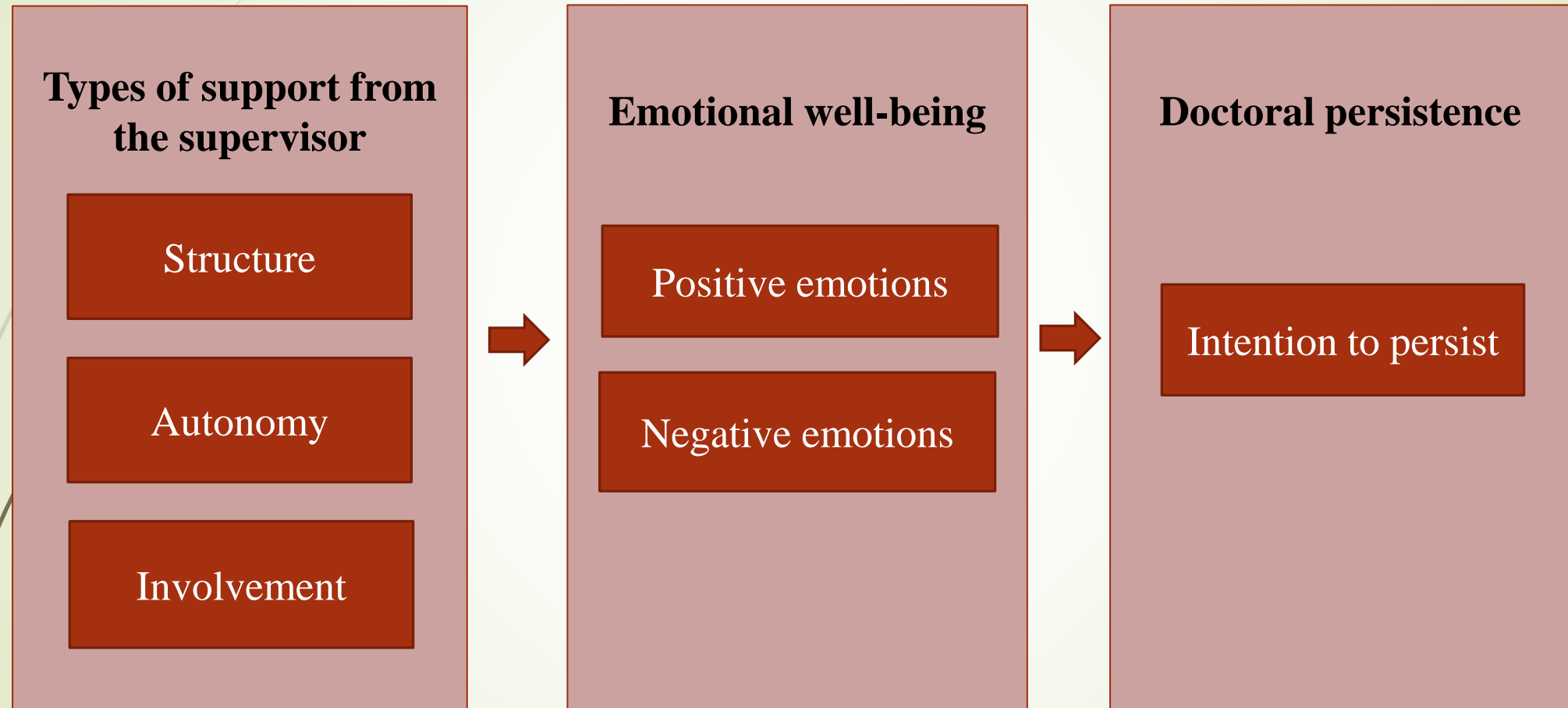|	Men	Women		Men	Women
Nationality			**Age**		
Belgian nationals	70%	73%	Strictly lower than 26 years old	55%	58%
Nationals from another EU country	16%	18%	Between 26 and 40 years old	40%	38%
Non-EU nationals	14%	9%	Strictly higher than 40 years old	5%	4%
Number of children					
None	81%	77%	2 children	6%	7%
0 but I am or my partner is pregnant	2%	2%	3 children	2%	2%
1 child	7%	11%	4 children or more	2%	1%
Master grade			**Marital status**		
Very high distinction	20%	24%	Single	42%	34%
High distinction	44%	51%	Engaged in a committed relationship	32%	34%
Distinction	31%	22%	Married	26%	31%
Satisfactory	5%	3%	Widowed	0%	1%
Position			**Research field**		
Fellowship or research project (grant or contract)	62%	64%	Sciences and technologies	44%	24%
Assistant lectureship	25%	23%	Health sciences	19%	24%
I have two types of funding (e.g., grant and assistant)	2%	3%	Social sciences	28%	34%
No-funding or unknown funding	11%	10%	Human sciences	8%	18%

VARIABLES	T1	T2	T3	T4
Sociodemographic characteristics	X	X		
Professional values/scientific norms	X			X
Motivation for doctoral studies				X
Perception of discrimination based on gender				X
Types of support (structure/autonomy/involvement)				
• **Supervisor**	X	X	X	
• Accompanying committee	X	X		
• Colleagues	X	X		
• Relatives	X	X		
Work content				
• Value of the doctorate	X	X	X	X
• Workload	X	X		
• Satisfaction at work	X	X		
Working conditions				
• Funding	X	X	X	X
• Exhaustion		X	X	X
• **Emotional well-being (positive and negative emotions)**	X	X	X	X
PhD phases	X	X	X	X
Adjustment and coping strategies				X
Perceived and collective discrimination				X
Motivational beliefs	X	X	X	X
Intent to persist	X	X	X	X

T4 = 418
T3 = 689
T2 = 865
T1 = 1039

Research On PhD e
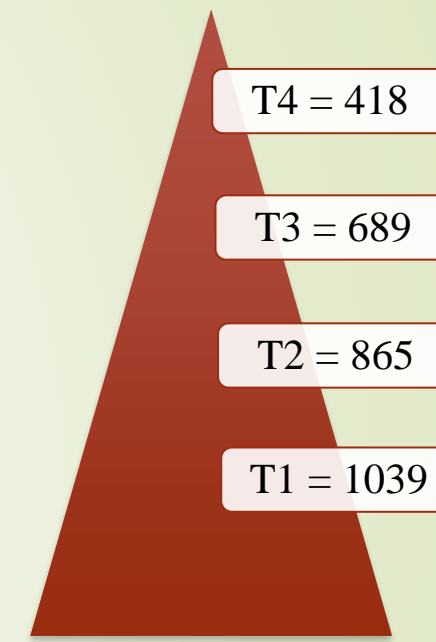
Types of supervisor support - Need Support scale

Supervisor

Adjustment

PhD student

Structure

My mentor defines clear objectives for me

My mentor provides me with constructive feedback on my work

My mentor gives me good advice on how I should plan and carry out my research

My mentor discusses with me the difficulties I face and possible solutions

Autonomy

My mentor encourages me to work in an independent way

My mentor puts me under a lot of pressure (reversed item)

My mentor directs my work a lot, without really asking for my opinion (reversed item)

My mentor gives me little freedom in how I carry out my work (reversed item)

Involvement

My mentor shows that he/she respects me and values me

My mentor reassures me when I need it

My mentor is concerned about me, not only as a researcher but also as an individual

My mentor behaves warmly towards me when we discuss my research

Responses were made on a Likert scale ranging from 1 (Totally disagree) to 5 (Totally agree).

Types of support (*N* = 410 men and 514 women)

	Women	Men	Significativity
Structure	3.57	3.61	Non-significant
Autonomy	4.09	4.07	Non-significant
Involvement	3.98	3.99	Non-significant

From 1 (Totally disagree) to 5 (Totally agree)

Emotional well-being for men and women

	When I'm working on my doctorate, I feel...		
		Women	Men	Significativity
Negative emotions	Stressed/Anxious	**62%**	**48%**	**
	Angry/Revolted	*11%*	*12%*	Non-significant
	Ridiculous/Ashamed	*12%*	*12%*	Non-significant
	Sad/Depressed	**21%**	**15%**	*
	Discouraged/Demoralised	**33%**	**18%**	**
Positive emotions	Confident/Optimistic	**36%**	**54%**	**
	Curious/Captivated	*68%*	*73%*	Non-significant
	Happy/Fulfilled	**37%**	**51%**	**
	Satisfied/Contented	**40%**	**49%**	**

N = 410 men and 514 women

Doctoral persistence

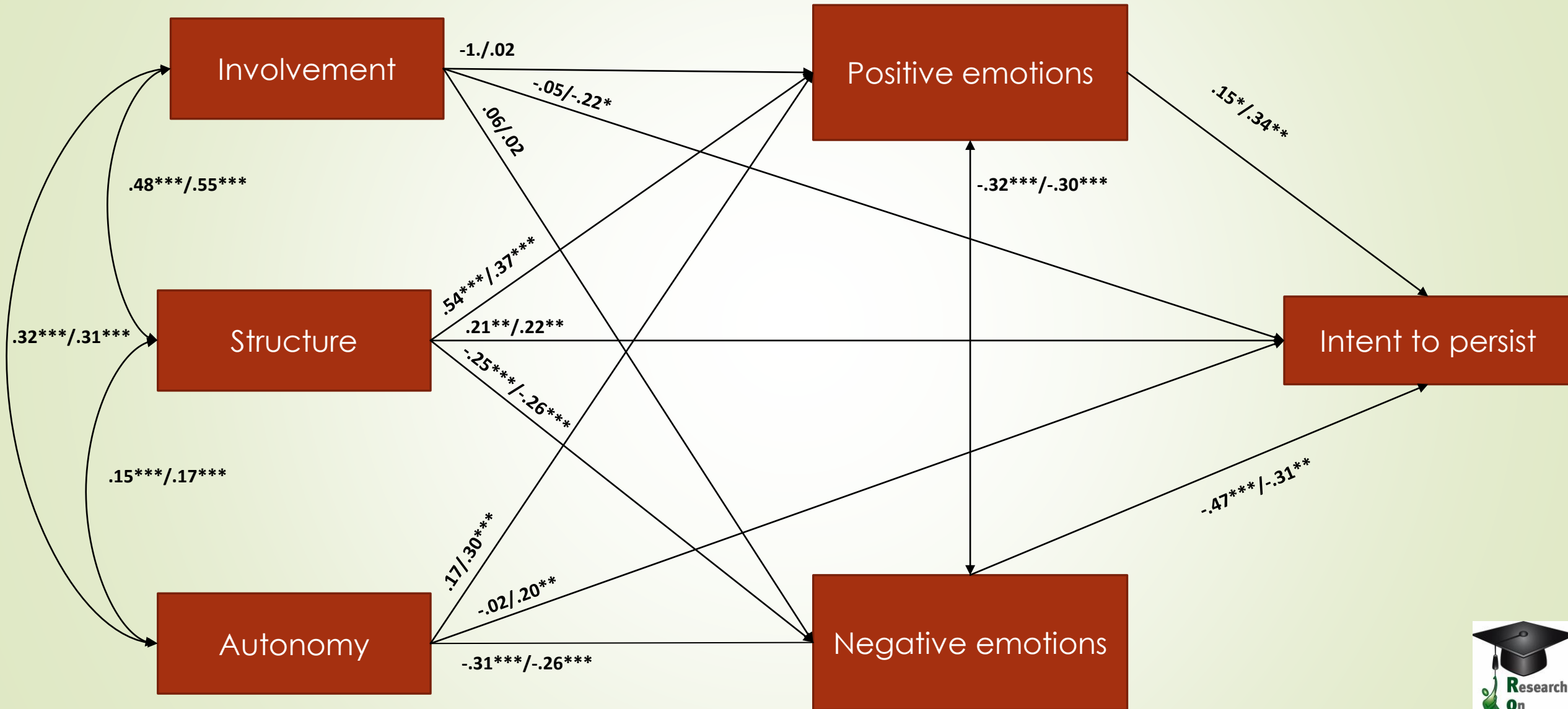| Intent to persist |
|---|
| No matter what happens, I intend to finish my PhD |
| I am seriously considering quitting my PhD (Reversed) |
| I plan on getting to the end of my thesis |
| If the current conditions of my PhD should continue, I am not sure whether I will finish it or not (Reversed) |
| I have already thought of giving up on my PhD (Reversed) |
| I am certain of having made the right decision by enrolling in a PhD program |

From 1 (strongly disagree) to 5 (strongly agree).

	Women	Men	Significativity
Intent to persist	4.01	4.18	$p = .002$

Interaction: gender of PhD Student X gender of supervisor

	Male supervisor		Female supervisor		Effects
	Male PhD	Female PhD	Male PhD	Female PhD	-
Involvement supervisor	3.97	3.95	4.06	4.02	Non-significant
Structure supervisor	3.58	3.54	3.72	3.63	Non-significant
Autonomy supervisor	4.06	4.09	4.13	4.10	Non-significant
Support of colleagues	3.68	3.81	3.74	3.80	Main effect of gender of PhD
Support of relatives	2.93	3.17	2.96	3.11	Main effect of gender of PhD
Emotional well-being	3.61	3.45	3.73	3.34	Main effect of gender of PhD Interaction effect
Intent to persist	4.17	4.03	4.24	3.97	Main effect of gender of PhD

Theoretical model for men and women

Involvement

Structure

Autonomy

Positive emotions

Negative emotions

Intent to persist

-1./.02

-.05/-.22*

.06/.02

.48***/.55***

.54***/.37***

.21**/.22**

-.25***/-.26***

.32***/.31***

.15***/.17***

.17/.30***

-.02/.20**

-.31***/-.26***

-.32***/-.30***

.15*/.34**

-.47***/-.31**

Estimations for men / women. CFI = .907, RMSEA = .040

Conclusions

➡ Mean differences as a function of gender:

	Positive emotions	Negative emotions	Doctoral persistence	Structure	Autonomy	Involvement
Significativity	**V**	**V**	**V**	**X**	**X**	**X**

➡ Theoretical model

1. Structure ➜ Fundamental dimension
2. Involvement ➜ Secondary dimension
3. Autonomy ➜ Emotional balance + Intent to persist (for women)
4. Emotional balance ➜ Doctoral persistence

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