

# Young Scientists in ERA-Net Neuron Joint Calls 2010 and 2011

Leena Id, Hannele Lahtinen and Erkki Raulo,  
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## Summary



The purpose of this paper is to explore the position of young scientists in the 2010 and 2011 ERA-Net Neuron joint transnational calls themed as “Mental Disorders” and “Cerebrovascular Diseases” respectively. The study follows a comparable analysis done on the 2009 joint call (“Technology Development”). The examination focuses on i) the proportion of young scientists among all applicants and ii) their success in the application process. Data for the analysis is gathered from the pre-proposal and full proposal documents of the 2010 and 2011 joint calls.<sup>1</sup> These documents contain a brief CV and a list of 5 most relevant publications related to the call theme provided by each applicant in a given research consortium. The data is complemented with information from evaluation documents to assess whether the academic age<sup>2</sup>, academic status and gender of the applicants is related to their success in the application process. The data gathered and the results of the analysis are described in more detail below.



*Based on the analysis it can be summarized that there is no indication of a bias toward older applicants: success in the application process is not correlated with the indicators of academic age. These findings further support the conclusions from the 2009 study indicating that the ERA-Net Neuron serves as a good platform for funding young scientists.*

## 1. Data Sample and Analysis

The data samples consist of ERA-Net Neuron joint call pre-proposals from 2010 (Mental Disorders) and 2011 (Cerebrovascular Diseases) submitted by 102 and 54 research consortia respectively (only eligible applications included). Each consortium consists of several research groups from different countries as indicated in Table 1a. Each research group is represented by a group leader (applicant) with one designated group leader acting as a Coordinator for each consortium. Data regarding consortia and applicants is complemented with evaluation documents providing information on pre-proposal scores, how many consortia were invited to submit a full proposal and how many received funding (latter two also shown in Table 1a).

<sup>1</sup> In some cases data are completed with information from the internet.

<sup>2</sup> Academic age indicators used in the present study: “Years since PhD” (or an equivalent degree) and “Years as Professor”.

**Table 1a: Information on data sample in 2010 and 2011 joint calls**

Year	Number of consortia (and pre-proposals)	Number of research groups	Size of consortia (range)	Number of countries <sup>3</sup>	Applicants part of two or more consortia <sup>4</sup>	Number of full proposals requested	Number of consortia funded
2010	102	358	3-5	14	32	32	11
2011	54	207	3-5	16	12	19	10

The two independent calls are analyzed separately, and applicants are examined as individuals (Chapter 2) and as part of consortia (Chapter 3). The first section in Chapter 2 discusses some indicators of academic age, the second focuses on gender, and the third covers data relating to the 5 most relevant publications. Chapter 3 examines indicators for academic age, consortia size and gender on the consortia level.

Different types of statistical measurements are used to analyse the data. Differences in means are compared using either a t-test (two groups) or one-way ANOVA analysis (three or more groups). Correlations between variables are calculated using Pearson's correlation co-efficient for variables on at least the interval level. For nominal level categorical variables, the dependencies between variables are measured using Pearson's chi-squared test if allowed by the data. For other cases contingency co-efficient is used instead. A null hypothesis of no differences in means or correlations is assumed as a starting point for all measurements and only the alternative hypotheses are stated in each section as applicable. 5% level is considered as statistically significant in all measurements for rejecting the null hypothesis.

## 2. Results by Applicants

### 2.1 Academic Age

This section discusses the academic age of the applicants and how it relates to their success in the application process and receiving funding. The impact of being in a Coordinator role or holding a Professorship is also looked at in this respect.

In the first part of the analysis, the impact of academic age on receiving funding is studied. The analysis is based on the "Years since PhD" variable calculated for each applicant<sup>5</sup>. Table 2.1a provides statistics for this variable grouped by whether the applicants received funding or not.

**Table 2.1a: Descriptive statistics for "Years since PhD" of applicants by funding status**

Year	Funding	Years since PhD					
		N	Minimum	Maximum	Mean	Median	Std. Deviation
2010	No	244	1	42	18,6	16	8,9
	Yes	42	2	40	17,2	17	8,3
	Total	286	1	42	17,6	16	8,8
2011	No	138	1	41	18,0	17	8,5
	Yes	33	1	34	18,2	19	8,4
	Total	171	1	41	18,1	18	8,5

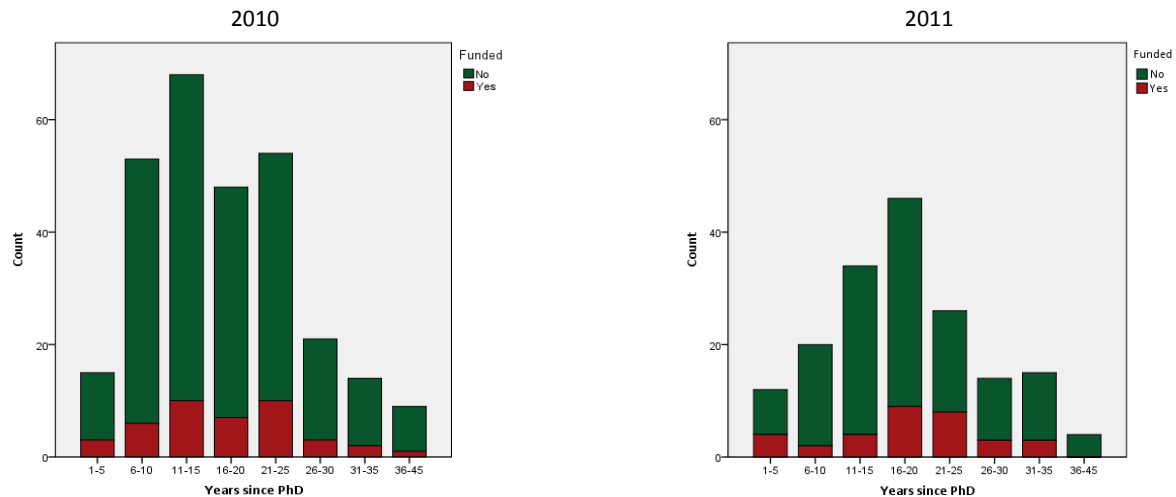
<sup>3</sup> Austria, Belgium (2011 only), Canada, Finland, France, Germany, Israel, Italy, Luxembourg, Netherlands (2011 only), Poland, Romania, Spain, Switzerland, UK, USA.

<sup>4</sup> Some applicants are part of 2-5 consortia but they are counted only once in the individual level analyses. None of these applicants are acting as a Coordinator in more than one consortium.

<sup>5</sup> In some cases it was not possible to confirm the PhD completion year or the PhD status (status missing: 40 cases in 2010 and 30 in 2011).

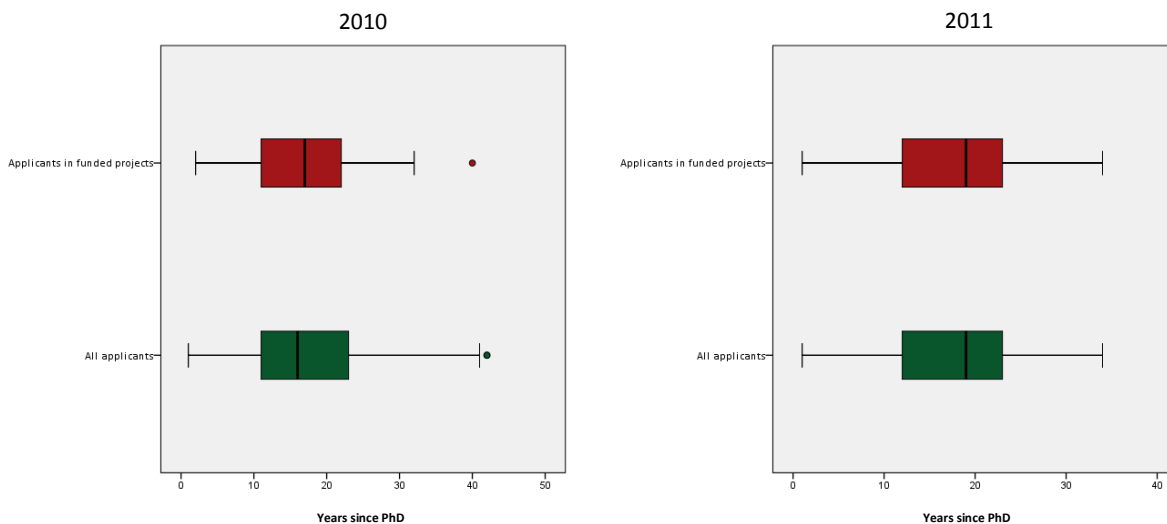
The difference in mean “Years since PhD” between the two groups is not statistically significant (t-test) in either year indicating that academic age is not a factor in receiving funding. Thus, younger applicants can be considered to be equally well positioned as their more senior counterparts in this respect.

Graph 2.1a presents the number of applicants in a bar chart showing that the funded and unfunded groups are quite evenly distributed across the academic age range (grouped “Years since PhD”).



**Graph 2.1a:** Grouped “Years since PhD” of applicants by funding status (red bars indicating funded projects)

Graph 2.1b compares the “Years since PhD” of all applicants and those who received funding. Medians within each year are almost the same in the two groups (16 and 17 in 2010 and 18 and 19 in 2011) though there is some variation in the range especially in 2010.



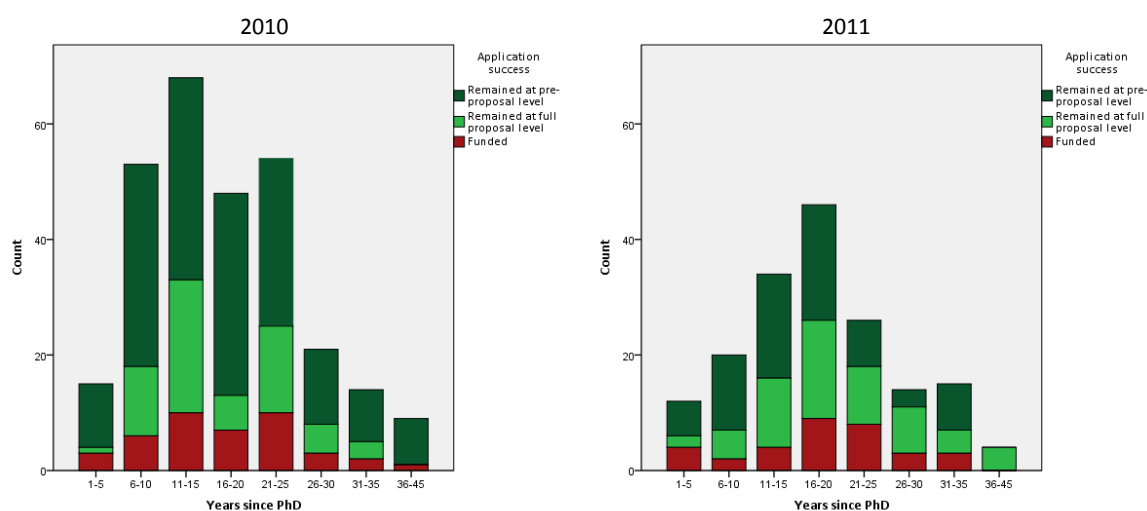
**Graph 2.1b:** Comparison of “Years since PhD” between all applicants and those who received funding

Academic age can also be looked at in relation to application success where the unfunded group is divided further based on whether the applicants remained at pre-proposal or full proposal level (Table 2.1b). The funded group remains as its own group in the same way as in the previous analysis.

Table 2.1b: Descriptive statistics for “Years since PhD” of applicants by application success							
Year	Application success	N	Minimum	Maximum	Mean	Median	Std. Deviation
2010	Remained at pre-proposal level	177	1	42	17,6	16	9,2
	Remained at full proposal level	67	4	42	17,8	15	8,3
	Funded	42	2	40	17,2	17	8,3
	Total	286	1	42	17,6	16	8,8
2011	Remained at pre-proposal level	76	2	35	16,4	16	8,3
	Remained at full proposal level	62	2	41	20,1	20	8,4
	Funded	33	1	34	18,2	19	8,4
	Total	171	1	41	18,1	18	8,5

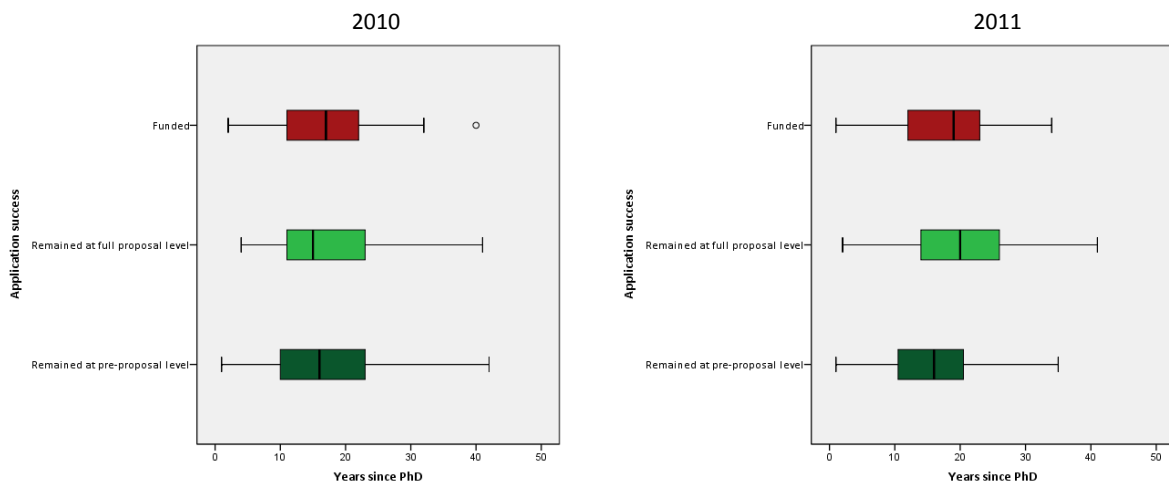
The differences in mean “Years since PhD” seem to be very small between the three groups in 2010 but in 2011 there is more variation. Results from the one-way ANOVA analysis show that in 2010 differences between the three groups is not statistically significant indicating that academic age is not impacting application success. In 2011 there is a statistically significant difference (at 5% level) between those applicants who remained at pre-proposal level and those who remained at full proposal level. However, the funded group does not differ statistically from the two other groups. These results thus support the earlier finding that there is no bias towards more senior applicants in funding decisions.

Graph 2.1c presents the number of applicants in a bar chart showing their distribution in the three application success groups across the academic age range (grouped “Years since PhD”).



**Graph 2.1c:** Grouped “Years since PhD” of applicants by application success

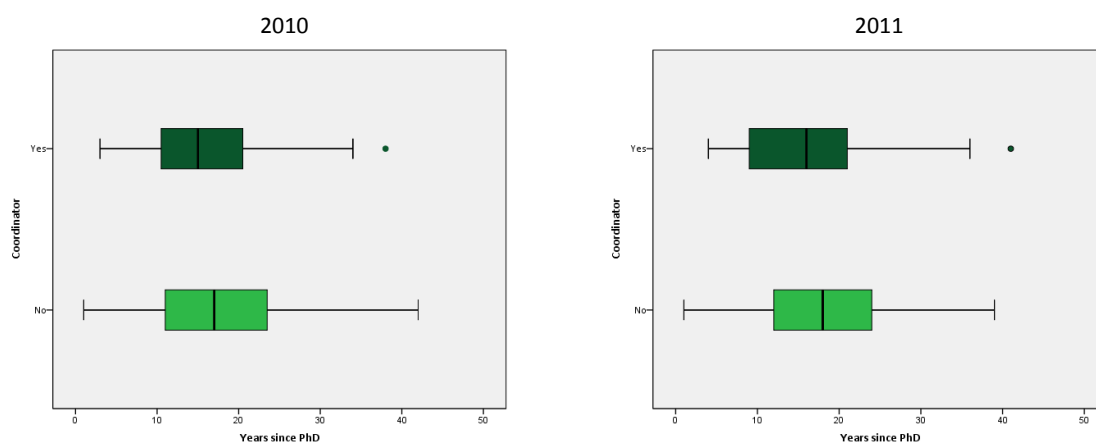
Graph 2.1d compares the “Years since PhD” of applicants in each application success group (“Remained at pre-proposal level”, “Remained at full proposal level” and “Funded”). Medians are almost the same in the three groups in 2010 (16, 15 and 17) but in 2011 there is more variation between the first two groups as discussed earlier (medians 16, 20 and 19 respectively).



**Graph 2.1d:** Comparison of “Years since PhD” of applicants by application success

The impact of the Coordinator role on application success was also studied. It is hypothesized that consortia would benefit from having more senior applicants as Coordinators and their academic age would thus correlate with the pre-proposal scores of the consortia.

Graph 2.1e compares the “Years since PhD” of Coordinators and the rest of applicants. In 2010 the mean “Years since PhD” of Coordinators is 16,0 and the median is 15 (18,2 and 17 for the rest respectively). In 2011 their mean “Years since PhD” is 17,2 and their median is 16 (18,4 and 18 for the rest respectively). Results from the t-test show that in 2010 there is a statistically significant difference (at 5% level) in the mean “Years since PhD” between Coordinators and the rest of applicants indicating that, on average, the Coordinators are actually academically younger than the other applicants. In 2011 no statistical difference was found in the academic age between the two groups. Thus, nomination to Coordinator role does not seem to be based on academic seniority.



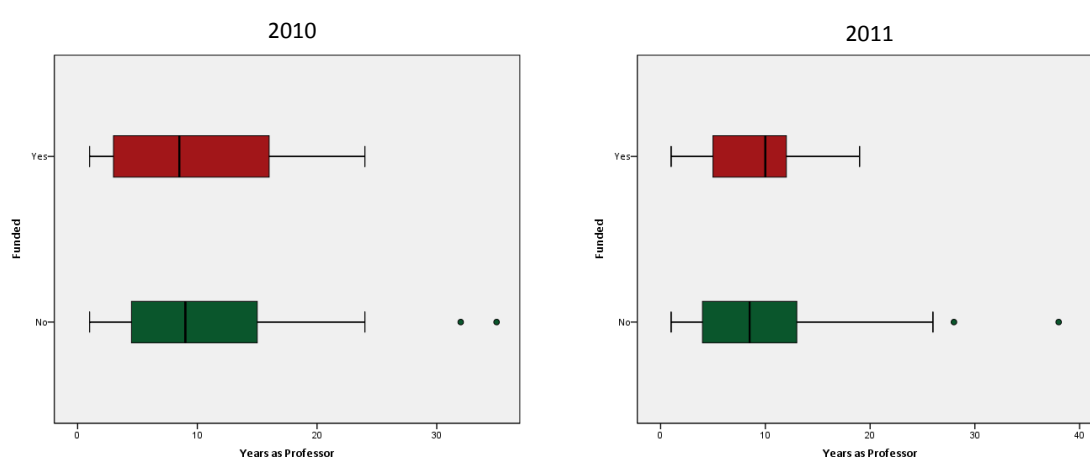
**Graph 2.1e:** Comparison of “Years since PhD” of Coordinators and the rest of applicants

It was also found that there is no correlation between the “Years since PhD” of the Coordinator and the score of the pre-proposals in 2010 (Pearson’s correlation co-efficient). This indicates that the academic age of the Coordinator is not impacting the pre-proposal scores. In 2011 the correlation between the two variables is actually negative (statistical significance at 5% level). Thus, consortia cannot be said to benefit from more senior Coordinators when it comes to pre-proposal scores.

What was also looked at was the number of (full) Professors and the dependency between having a Professorship and receiving funding. Table 2.1c presents the number of Professors among all applicants and how they are divided in terms of funding status. In 2010 41% and in 2011 50% of the applicants are Professors. The share of Professors is approximately the same in funded and unfunded projects within each year (43% and 40% in 2010 and 59% and 48% in 2011 respectively). No dependency was found between having a Professorship status and receiving funding in either year (Pearson chi-square).

Table 2.1c: Number of Professors by funding status				
Year	Professorship	Funding		Total
		No	Yes	
2010	No	188 (60%)	25 (57%)	213
	Yes	126 (40%)	19 (43%)	145
	Total	314	44	358
2011	No	88 (52%)	16 (41%)	104
	Yes	80 (48%)	23 (59%)	103
	Total	168	39	207

Graph 2.1f compares the “Years as Professor” between those Professors who received funding and those who did not. In 2010 the mean “Years as Professor” for those who received funding is 9,7 and the median is 9 (the same figures for those who did not receive funding are 10,1 and 9 respectively). In 2011, the mean “Years as Professor” for those who received funding is 9,0 and the median is 10 (the same figures for those who did not receive funding are 10,5 and 9 respectively). The difference in mean “Years as Professor” between the two groups is not statistically significant (t-test) in either year showing that the length of Professorship status is also not a factor in receiving funding.

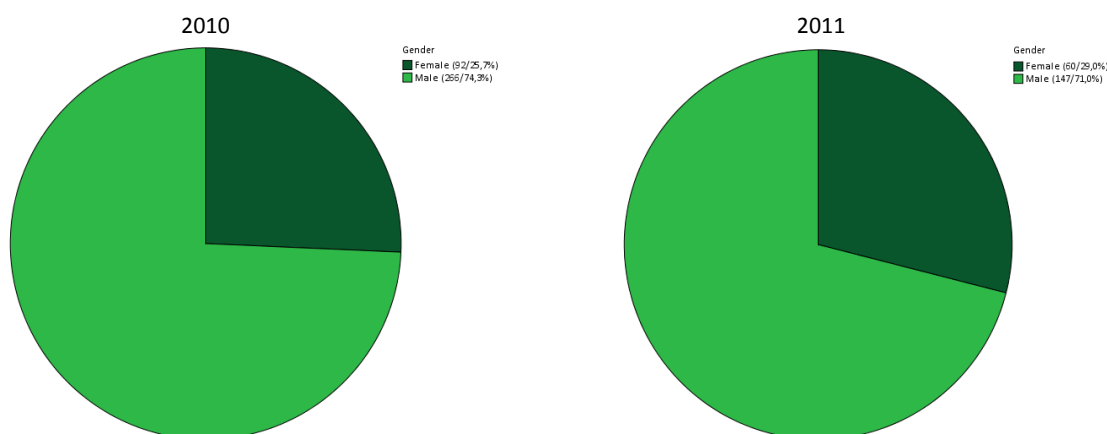


**Graph 2.1f:** Comparison of “Years as Professor” between those Professors who received funding and those who did not

## 2.2 Gender

This section focuses on gender. The division of men and women is looked at among all applicants and in the Coordinator and Professorship groups. The impact of gender on receiving funding is also studied.

The share of women among all applicants in the 2010 (Mental Disorders) and 2011 (Cerebrovascular Diseases) joint calls is illustrated in Graph 2.2a showing an almost equal percentage for both years (2010: 26%, 2011: 29%).



**Graph 2.2a:** Share of women and men among all applicants

Table 2.2a further highlights the division of women and men in the Coordinator and Professorship groups. In 2010 30% of all women act as Coordinators and 36% hold a full Professorship. The same figures for men are 28% and 42%. In 2011 30% of all women act as Coordinators and 37% hold a full Professorship. The same figures for men are 24% and 55%.

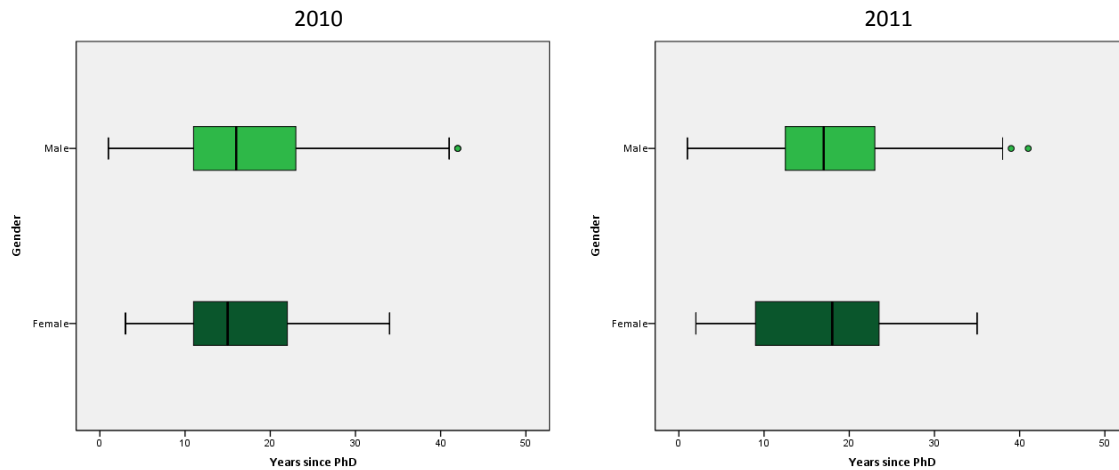
Table 2.2a: Division of gender among all applicants and in the Coordinator and Professorship groups								
Year		Number of females	% of females	% of total	Number of males	% of males	% of total	Total
2010	All applicants	92	100	26	266	100	74	358
	Applicants acting as Coordinators	28	30	27	74	28	73	102
	Applicants holding a Professorship	33	36	23	112	42	77	145
2011	All applicants	60	100	29	147	100	71	207
	Applicants acting as Coordinators	18	30	33	36	24	67	54
	Applicants holding a Professorship	22	37	21	81	55	79	103

Gender division is also looked at in terms of academic age as shown in Table 2.2b.

Table 2.2b: Descriptive statistics for "Years since PhD" of applicants by gender							
Year	Gender	N	Minimum	Maximum	Mean	Median	Std. Deviation
2010	Female	81	3	34	16,5	15	7,2
	Male	205	1	42	18,0	16	9,4
	Total	286	1	42	17,6	16	8,8
2011	Female	52	2	35	17,4	18	9,1
	Male	119	1	41	18,3	17	8,3
	Total	171	1	41	18,1	18	8,5

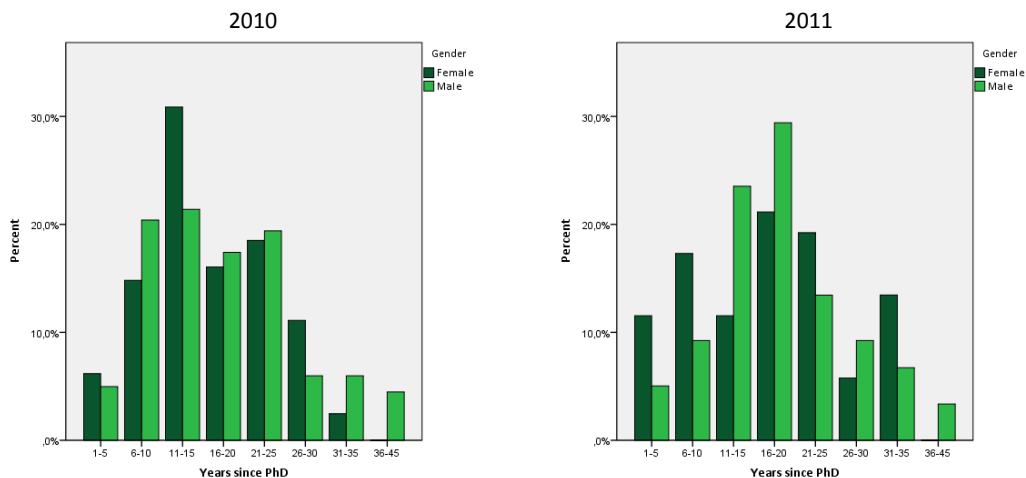
Even though women have slightly lower mean “Years since PhD” compared to men in both years, these differences are not statistically significant (t-test).

Graph 2.2b compares the “Years since PhD” of men and women in a box plot. In 2010 the median for men is 16 and for women 15. In 2011 the median for men is 17 and for women 18.



**Graph 2.2b:** Comparison of “Years since PhD” by gender

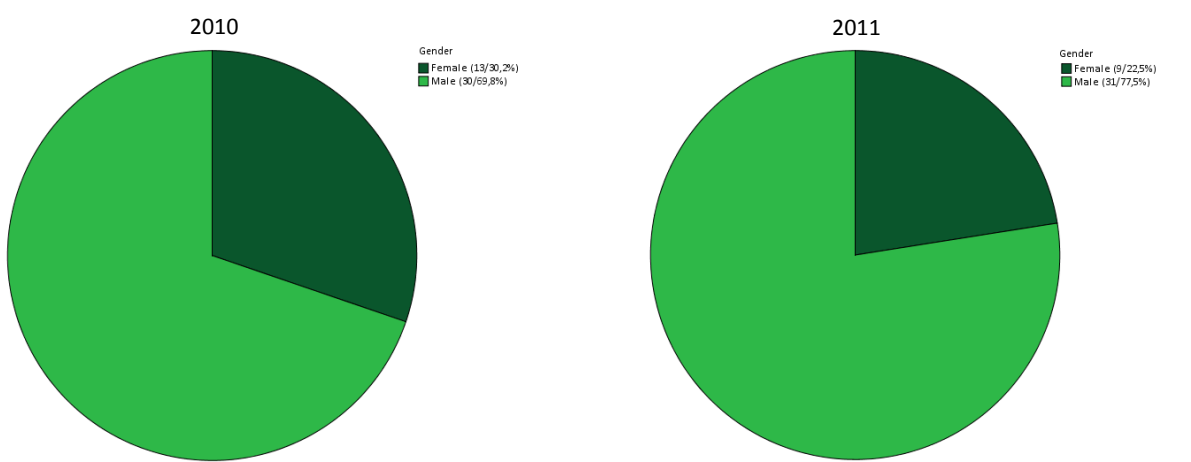
Graph 2.2c illustrates the “Years since PhD” by gender in a bar chart where the share of women and men are shown as percentage of all women and all men respectively. Women and men are quite evenly distributed across the academic age range (grouped “Years since PhD”) in both years.



**Graph 2.2c:** Grouped “Years since PhD” of applicants by gender (women shown as percentage of women and men as percentage of men)

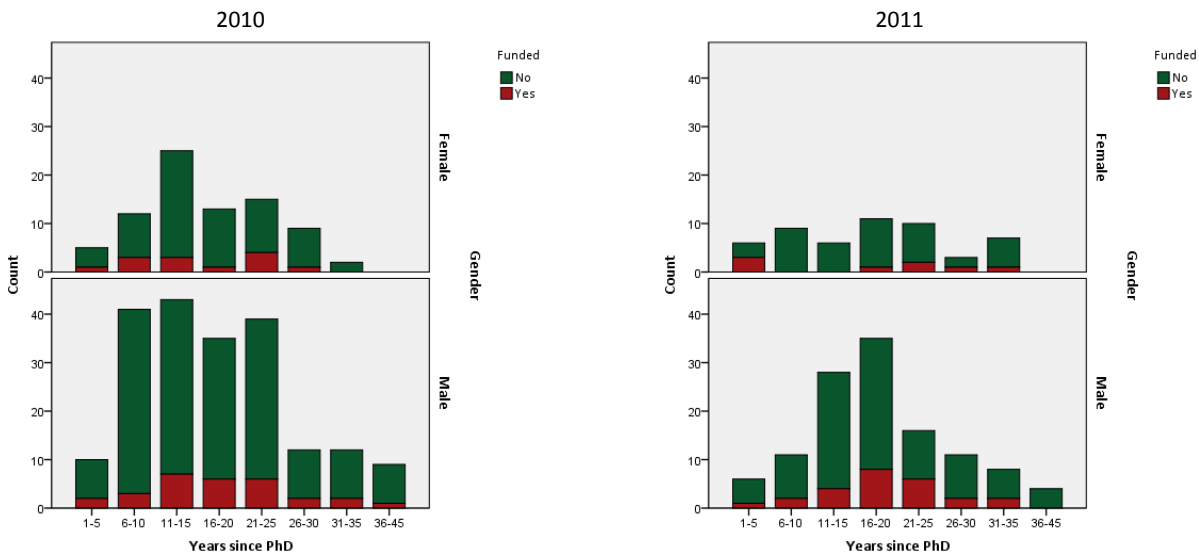


Graph 2.2d shows the share of women among funded applicants. In 2010 the share of women is bigger among applicants that received funding (30%) compared to the share of women among all applicants (26%) whereas in 2011 this trend is reversed (the figures are 23% and 29% respectively). No dependency was found between gender and receiving funding in either year (Pearson chi-square).



Graph 2.2d: Share of women among funded applicants

Graph 2.2e illustrates in a bar chart how women and men are divided by funding status across the academic age range.



Graph 2.2e: Grouped "Years since PhD" of women and men by funding status

## 2.3 Publications

In addition to a brief CV, the applicants were asked to submit a list of their 5 most relevant publications to the call themes (referred to as selected publications as of now). The following data was derived from them:

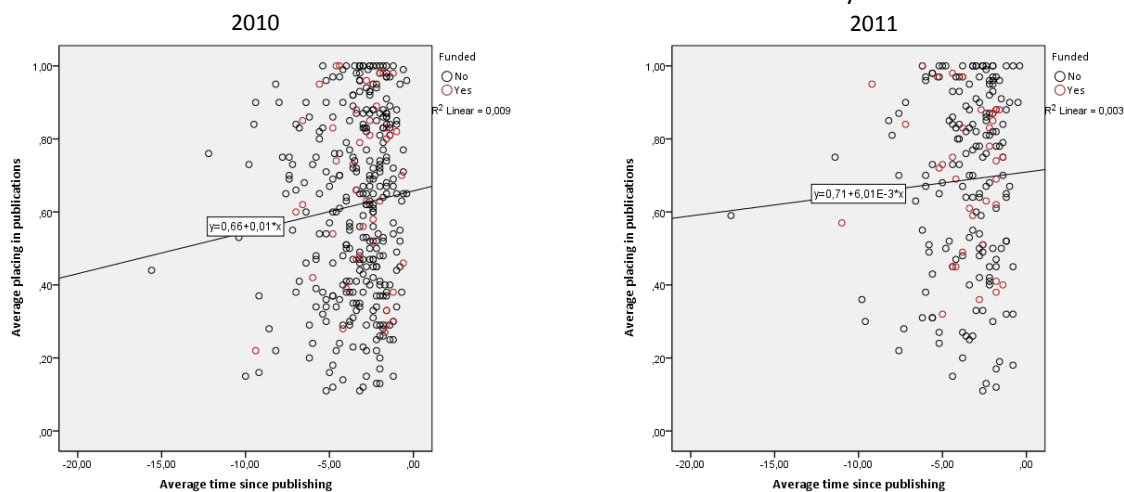
“Average placing in publications”: average placing among authors of the selected publications. Scale ranges from 0 to 1 with 1 indicating the most senior author

“Average time since publishing”: average time since publishing the selected publications

“Time range of publications”: length in years between the first and the most recent selected publication

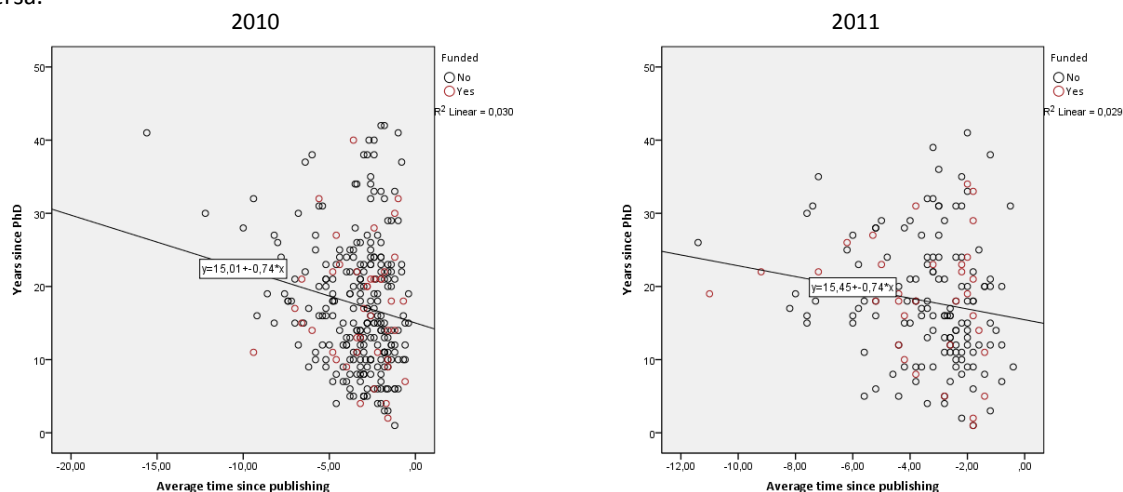
Scatterplot diagrams below (Graphs 2.3a, 2.3b, 2.3c and 2.3d) show how the above-mentioned variables and the “Years since PhD” of applicants correlate with each other (Pearson correlation co-efficient). The cases are labelled by funding status (red indicating applicants that received funding) to find out how evenly the applicants distribute across the correlated variables in this respect. In all cases the distribution was even across the variables studied.

Graph 2.3a shows the correlation between “Average placing in publications” and “Average time since publishing”. The results show that there is no correlation between these two variables in either year.



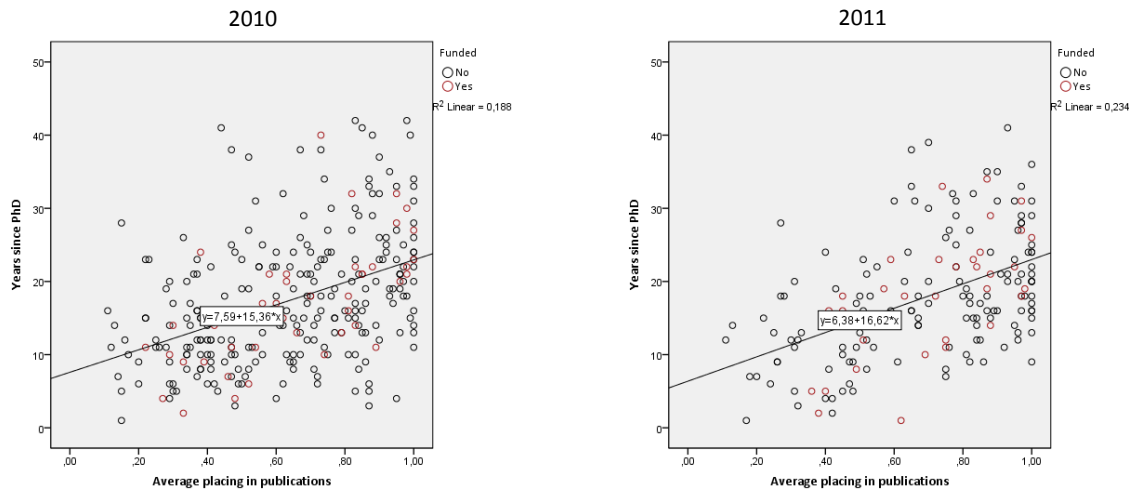
**Graph 2.3a:** Correlation of “Average placing in publications” and “Average time since publishing”

Graph 2.3b shows the correlation between “Years since PhD” and “Average time since publishing”. There is a statistically significant negative correlation between these two variables in both years (2010: 1% level, 2011: 5% level). This indicates that the “Average time since publishing” is lower the younger the applicant (in academic age) and vice versa.



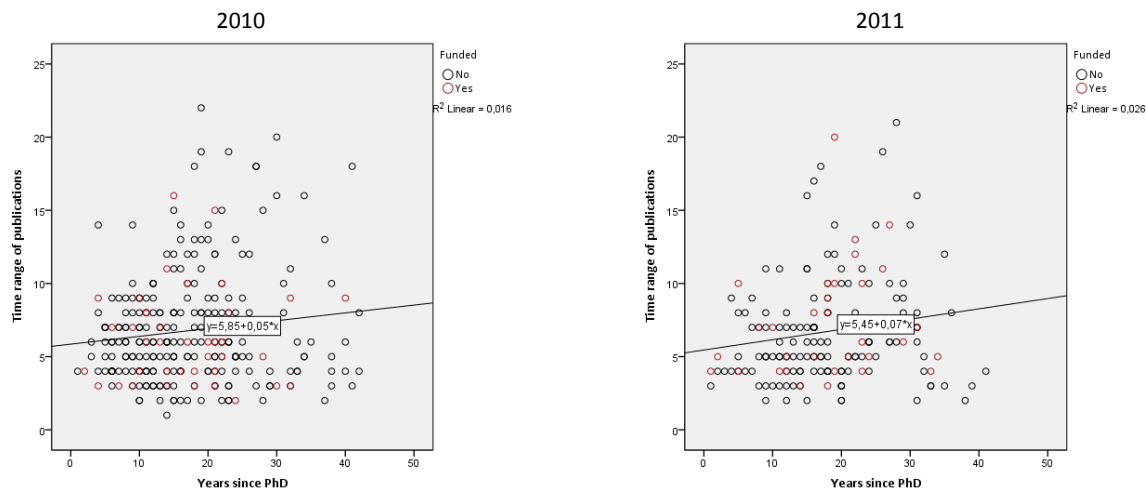
**Graph 2.3b:** Correlation of “Years since PhD” and “Average time since publishing”

Graph 2.3c shows the correlation between “Years since PhD” and “Average placing in publications”. There is a statistically significant positive correlation between these two variables in both years (at 1% level). This indicates that the younger the applicant the more junior the author position they hold in the selected publications and vice versa.



**Graph 2.3c:** Correlation of “Years since PhD” and “Average placing in publications”

Graph 2.3d shows the correlation between “Time range of publications” and “Years since PhD”. There is a statistically significant positive correlation between these two variables in both years (at 5% level). This shows that the “Time range of publications” is smaller with younger applicants and vice versa.



**Graph 2.3d:** Correlation of “Time range of publications” and “Years since PhD”

### 3. Results by consortia

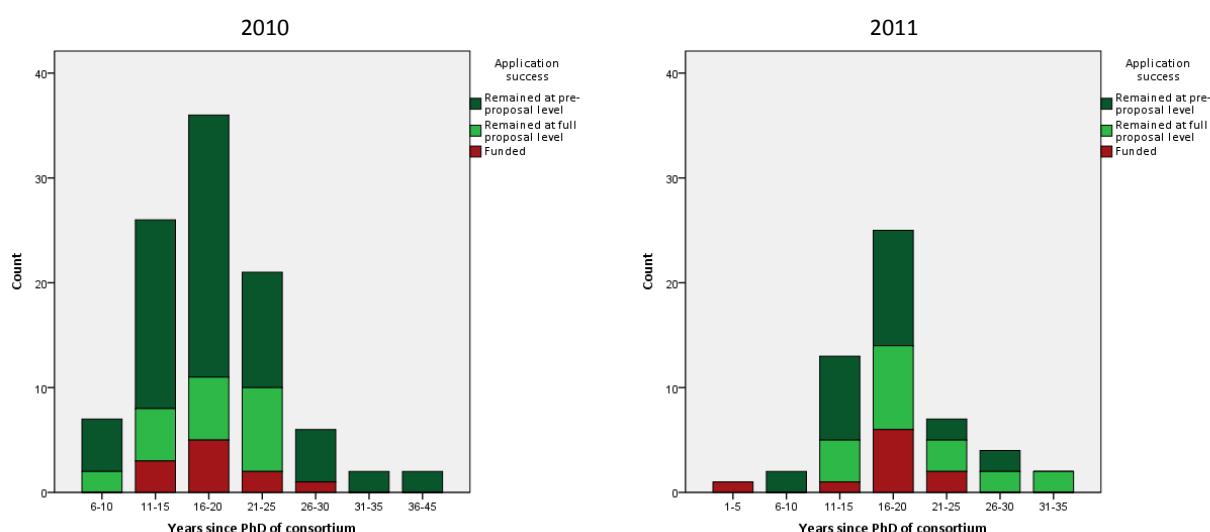
This chapter looks at the consortia level data in the 2010 (Mental Disorders) and 2011 (Cerebrovascular Diseases) joint calls. Academic age, research group size and gender are studied in terms of application success and receiving funding.

#### 3.1 Academic Age

This section examines the academic age of the consortia and how it relates to their success in the application process and receiving funding. The analysis is based on calculating the “Years since PhD of consortium” as an average of all applicants in a given consortium.<sup>6</sup> Table 3.1a provides statistics for this variable grouped by application success where the unfunded group is divided based on whether the applicants remained at pre-proposal or full proposal level. The differences in mean “Years since PhD of consortium” seem to be very small between the three groups in 2010 but in 2011 there is more variation. However, the one-way ANOVA analysis shows that the differences between the three groups are not statistically significant in either year indicating that the average academic age of the consortia does not have an impact on application success and receiving funding.

Year	Application success	Years since PhD					
		N	Minimum	Maximum	Mean	Median	Std. Deviation
2010	Remained at pre-proposal level	68	6	42	18,2	17	7,0
	Remained at full proposal level	21	9	25	17,3	17	4,9
	Funded	11	11	26	17,3	17	4,7
	Total	100	6	42	17,9	17	6,4
2011	Remained at pre-proposal level	25	9	26	16,2	15	4,7
	Remained at full proposal level	19	11	33	19,8	19	5,9
	Funded	10	4	23	17,5	18	5,3
	Total	54	4	33	17,7	18	5,4

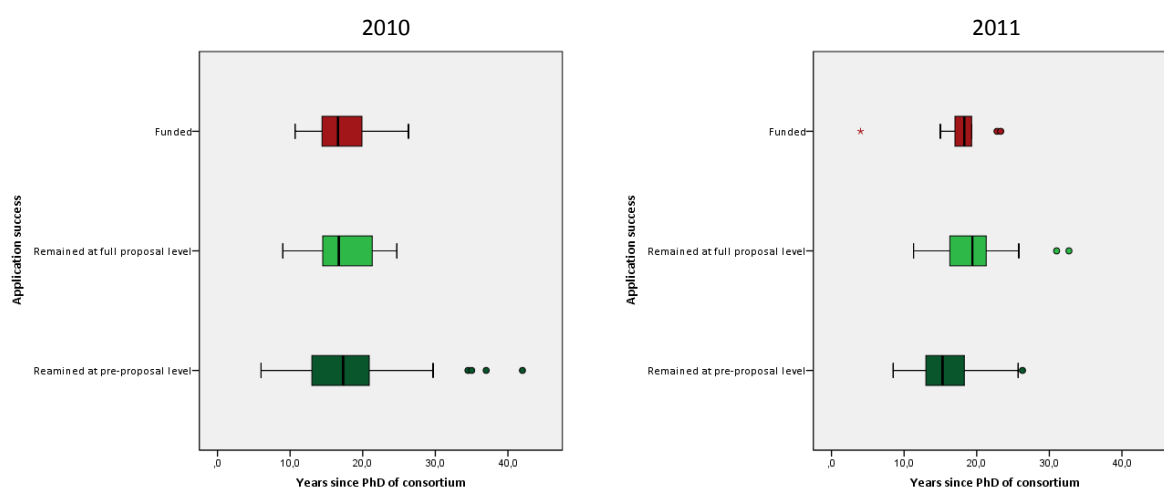
Graph 3.1a presents the number of consortia in a bar chart showing their distribution in the three application success groups across the academic age range (grouped “Years since PhD of consortium”).



Graph 3.1a: Grouped “Years since PhD of consortium” by application success

<sup>6</sup> The missing PhD status or PhD completion year, and hence the “Years since PhD of consortium” basing on one applicant’s data only for certain consortia add to the uncertainty of the academic age comparisons. However, these types of consortia (2010: 9 consortia, 2011: 3 consortia) all belong to the larger unfunded group and this is why also they are included in the calculations.

Graph 3.1b compares the “Years since PhD of consortium” in each application success group (“Remained at pre-proposal level”, “Remained at full proposal level” and “Funded”). Medians are the same in the three groups in 2010 (17) but in 2011 there is slightly more variation between the first two groups as discussed earlier (medians 15, 19 and 18 respectively).



**Graph 3.1b:** Comparison of “Years since PhD of consortium” by application success

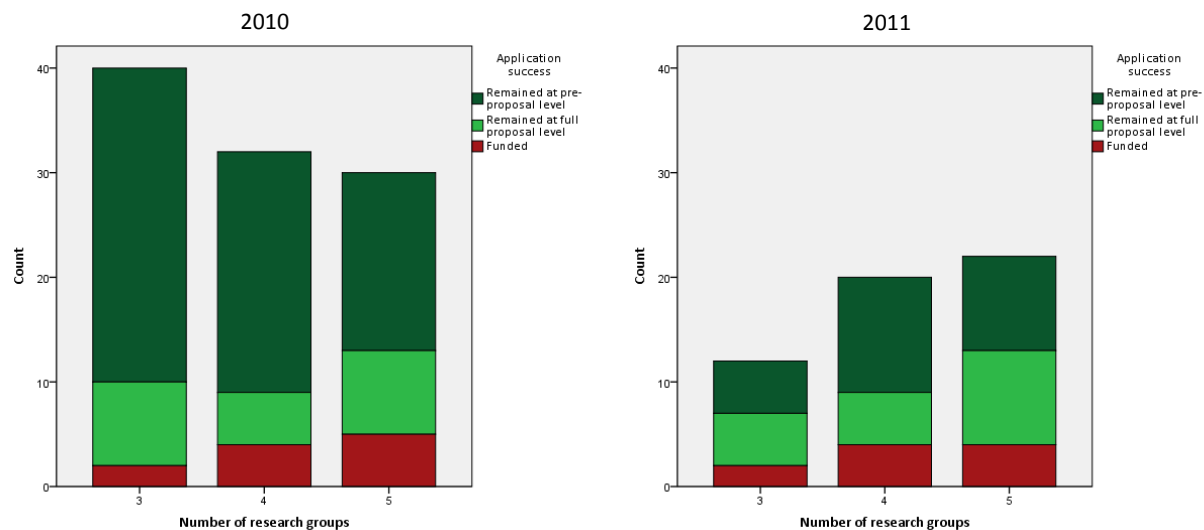
## 3.2 Consortia Size

This section studies the consortia size or more specifically the number of research groups in the consortia and how this relates to the application success and receiving funding.

The number of research groups in consortia varies from 3 to 5 in both years. Table 3.2a shows how the consortia size is divided in terms of application success. The analysis of the impact of consortia size to application success reveals that there is no dependency between these two variables (contingency co-efficient) so size does not seem to be a factor in receiving funding.

Table 3.2a: Consortia size by application success				
Year	Application success	Consortia size		
		3	4	5
2010	Remained at pre-proposal level	30	23	17
	Remained at full proposal level	8	5	8
	Funded	2	4	5
	Total	40	32	30
2011	Remained at pre-proposal level	5	11	9
	Remained at full proposal level	5	5	9
	Funded	2	4	4
	Total	12	20	22

Graph 3.2a illustrates the same data in a bar chart showing the division of consortia size by application success.

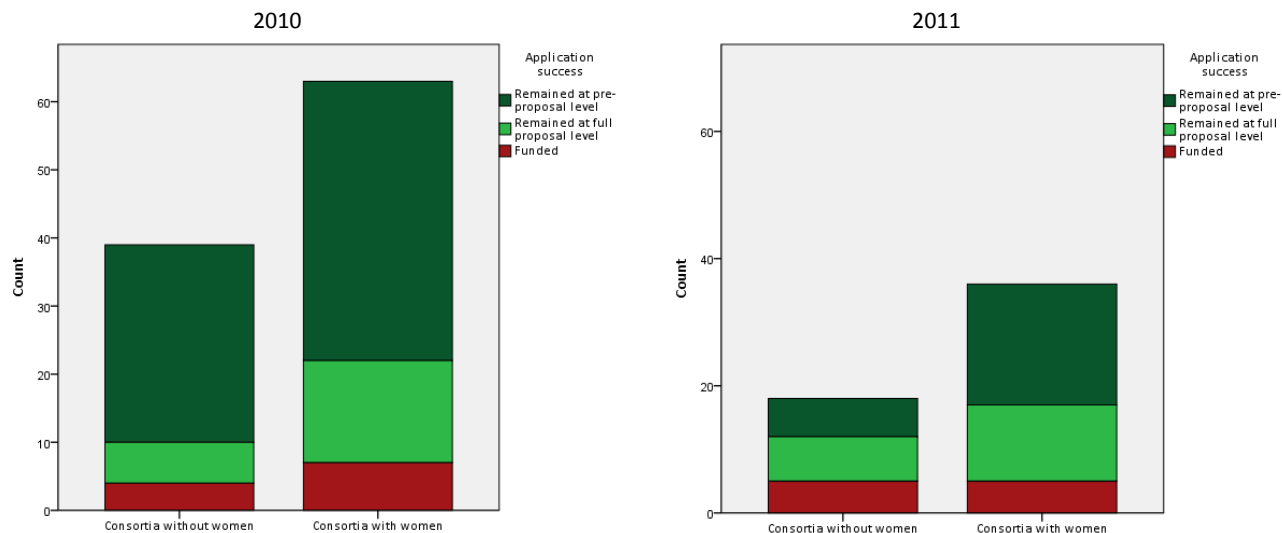


Graph 3.2a: Application success in the different sized consortia

### 3.3 Gender

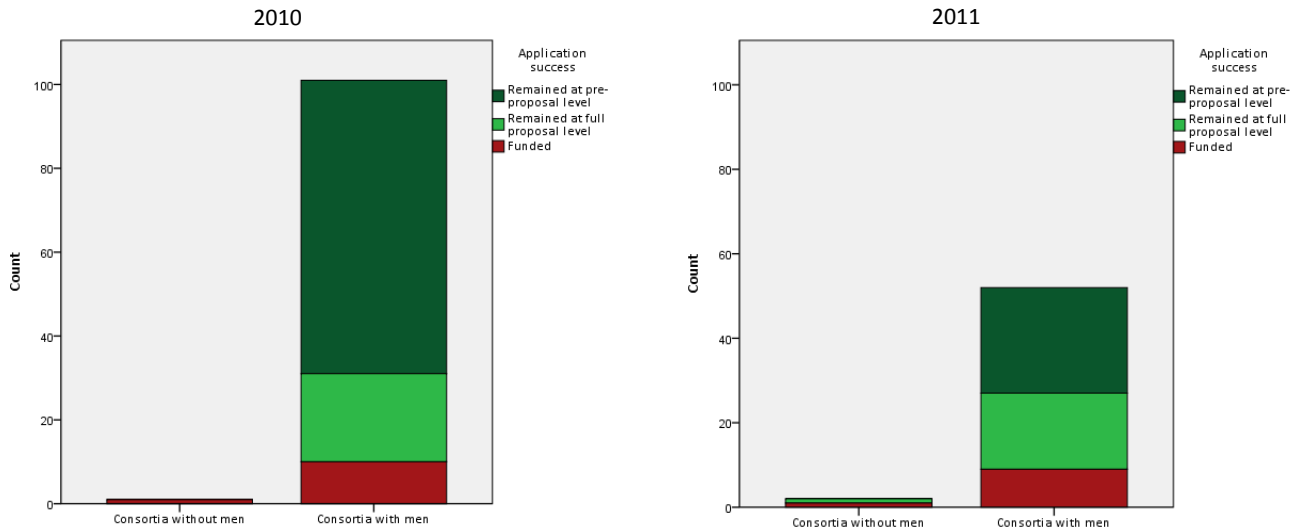
This final section discusses how gender balance in consortia impacts the application success and receiving funding. To analyze this, the consortia are divided in terms of inclusion and exclusion of women, men and both women and men. Dependencies between the gender and application success variables are calculated using contingency co-efficient.

Graph 3.3a illustrates how consortia are divided based on inclusion and exclusion of women in terms of application success. No dependency was found between these two variables on either year indicating that both type of consortia succeed equally well in receiving funding.



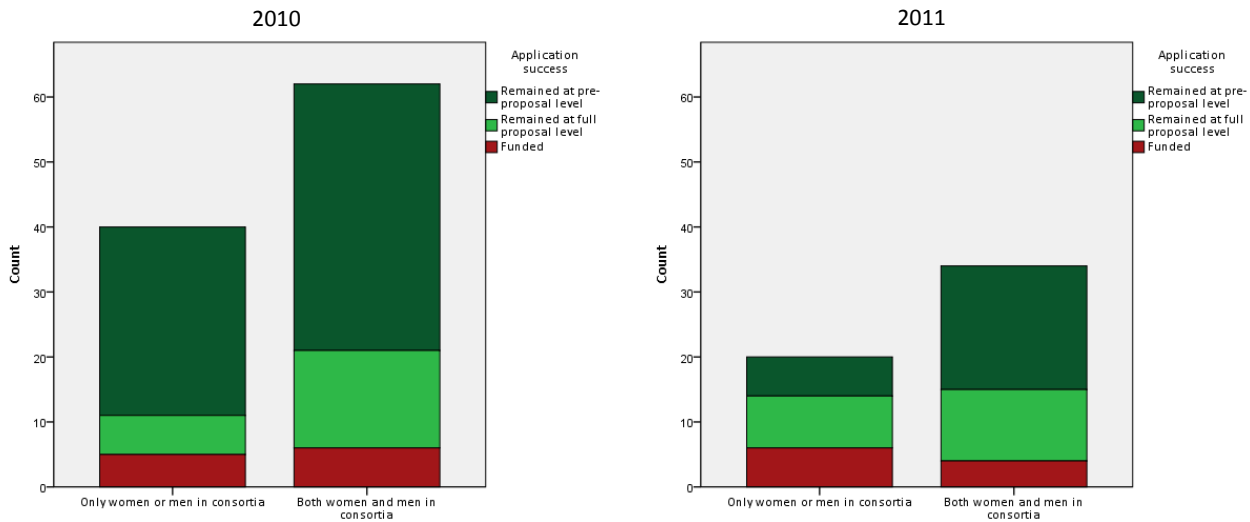
Graph 3.3a: Application success in consortia with and without women

Graph 3.3b illustrates how consortia are divided based on inclusion and exclusion of men in terms of application success. Again, no dependency was found between these two variables on either year indicating that both type of consortia succeed equally well in receiving funding. However, the very small number of consortia without men (one in 2010 and two in 2011) adds to the uncertainty of this comparison.



**Graph 3.3b:** Application success in consortia with and without men

Graph 3.3c illustrates how consortia are divided based on inclusion and exclusion of both women and men in terms of application success. The dependency analysis gives similar results as in the previous cases indicating that both type of consortia succeed equally well in receiving funding.



**Graph 3.3c:** Application success in consortia with only women or men or with both women and men