Background information

1.   The survey: General information

See e-book pages 169-172

Survey period: March 7 to April 30, 2018

Word-wide distribution: Snowballing via direct e-mail invitations, postings in mailing lists and on social media (twitter, facebook, etc.), and mentions in newsletters.

The sample: 205 participants completed the 13 page survey, 224 completed it up to page 7 and 250 up to page 4. This is the reason why the numbers of responses can vary.

The survey addressed people with an expertise and interest in lighting and light pollution from around the world and across different professions and disciplines and invited them to share their views and experiences.

The questions: The survey included open as well as closed questions (single/multiple choice).

The survey interface and variables can be downloaded at www.ufz.de/light-pollution.

The raw data is available at the Helmholtz Centre for Environmental Research – UFZ. For inquires please contact: nona.schulte-roemer@ufz.de.

Analysis: The data was cleaned, analyzed and prepared with the statistical software R and with Microsoft Excel.
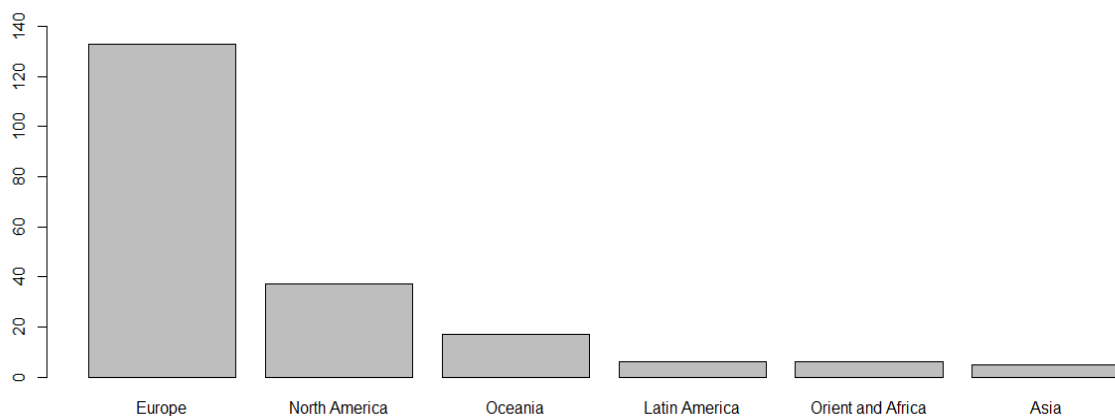
2.   Descriptive Statistics: Socio-demographic information

See e-book pages 172-176

2.1. Geographical backgrounds

The survey respondents live in 36 countries on 6 continents. Most participants live in Europe (n=133), followed by North America (n=37) and Oceania (n=17).

Figure 1: Number of survey participants per continent (n=204).

The best represented countries are Germany (n=40), the USA (n=25), the UK (n=25), Australia (n=11) and Spain (n=10). See table 1 on the following page.

Table 1: Participation per country (n=204).

| "Where do you currently live?" (questions x22a and x22b – postal code and country)			Categories as shown in the e-book map, p.171-172.		
36 countries listed	**Number of respondents**	**Percentage**	**Countries with... 1 respondent**	**2 to 9 respondents**	**10 and more respondents**
Australia	11	5,39%			1
Austria	4	1,96%		1	
Belgium	3	1,47%		1	
Brasil	1	0,49%	1		
Canada	12	5,88%			1
Chile	3	1,47%		1	
China	2	0,98%		1	
Czech Republic	4	1,96%		1	
Denmark	1	0,49%	1		
Finland	1	0,49%	1		
France	9	4,41%		1	
Germany	40	19,61%			1
Greece	1	0,49%	1		
India	2	0,98%		1	
Ireland	5	2,45%		1	
Israel	1	0,49%	1		
Italy	6	2,94%		1	
Japan	1	0,49%	1		
Malta	2	0,98%		1	
Mexico	2	0,98%		1	
Netherlands	5	2,45%		1	
New Zealand	6	2,94%		1	
Portugal	3	1,47%		1	
Romania	2	0,98%		1	
Russia	3	1,47%		1	
Saudi Arabia	1	0,49%	1		
Serbia	1	0,49%	1		
Slovakia	2	0,98%		1	
South Africa	1	0,49%	1		
Spain	10	4,90%			1
Sweden	3	1,47%		1	
Switzerland	3	1,47%		1	
Tanzania	2	0,98%		1	
Tunisia	1	0,49%	1		
UK	25	12,25%			1
USA	25	12,25%			1
Summe	204	100,00%	10	20	6

Moreover, 241 participants responded to our questions regarding the places of their light-related activities (x3a and x3b). They carry out their projects in more than 60 different countries. Most participants are active in Europe (n=171), followed by North America (n=50), Oceania as well as Africa and the Orient (each n=27), Asia (n=24) and Latin America (n=17).

2.2. The respondents' age and gender

The survey participants' age and gender cannot explain the differences in their responses. In our regression analyses, we only found statistically significant effects of gender and age regarding recommendations.[1] In particular, our logistical regression suggests that older survey participants were more likely and male respondents less likely to recommend the use of lighting concepts and integrated light planning in the context of light pollution mitigation.

Age: The survey participants were aged between 22 and 79. On average, they were 49 years old.

Figure 2: Age distribution of survey participants in our sample (n=200).

Histogram of newdata$Age

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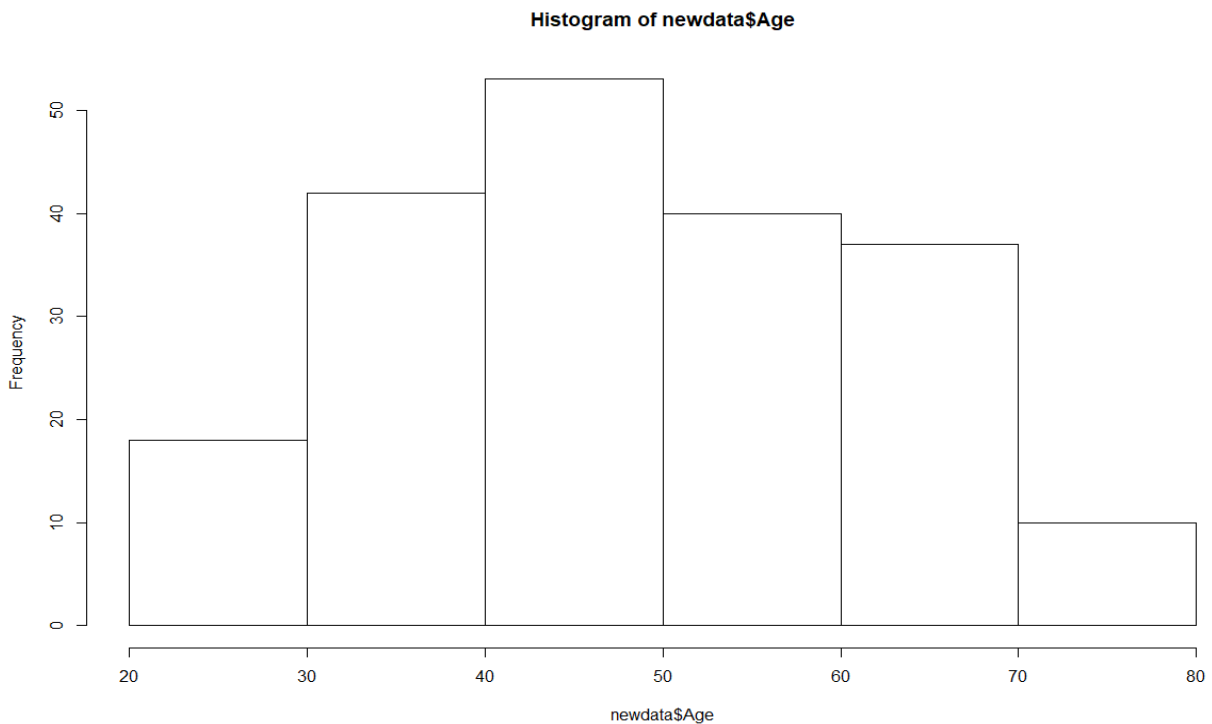
[1] Question x11: "To which extent would you recommend the following measures to avoid/reduce light pollution?", likert scale (1="not at all" to 5 "very strongly").

Respondents from North America and Oceania were on average older than survey participants from Europe, Latin America, Asia, Orient and Africa.

Figure 3: Age distribution by continent.
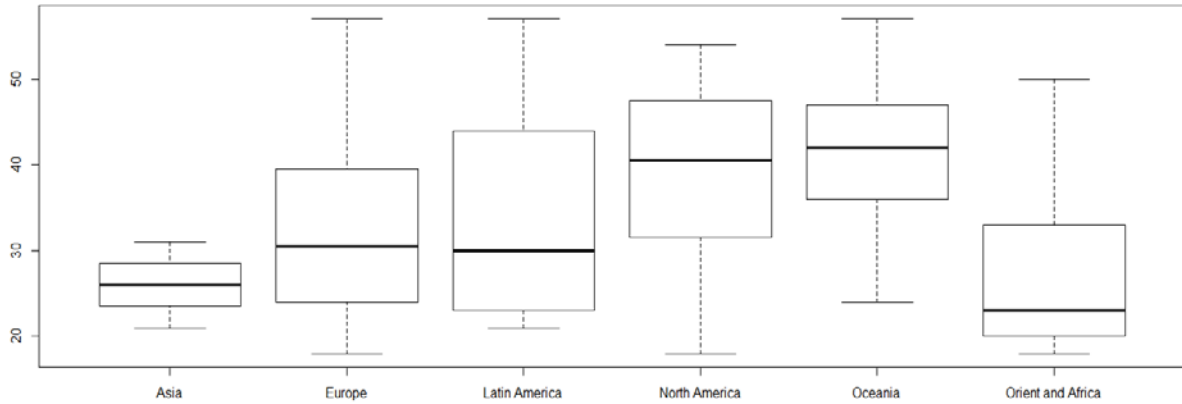
Gender: Among the 207 participants who answered our question about their gender, 145 are male (70%) and 60 female (29%). Two participants selected "other" (1%).

Figure 4: Gender distribution (n=207)
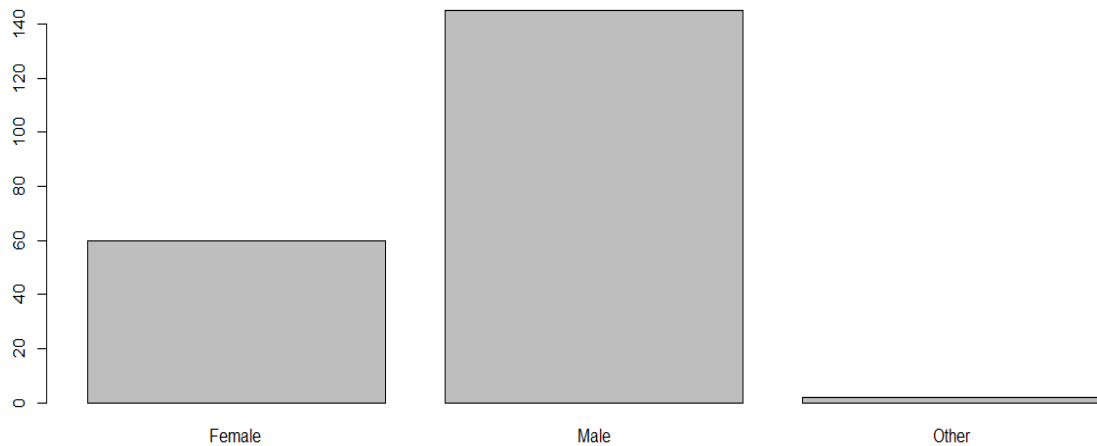
The gender imbalance in our sample is greatest in the regions with few survey participants, that is in the Orient and Africa and especially in Asia (see table 2).

Table 2: Gender distribution across continents

	Asia	Europe	Latin America	North America	Oceania	Orient and Africa
Female	0%	33%	33%	27%	19%	17%
Male	100%	67%	67%	73%	81%	83%

The women in our sample are slightly younger (on average 43 years old) than the men (on average 51 years old).[2]

Figure 5: Age distribution by gender (1= female, 2=male)

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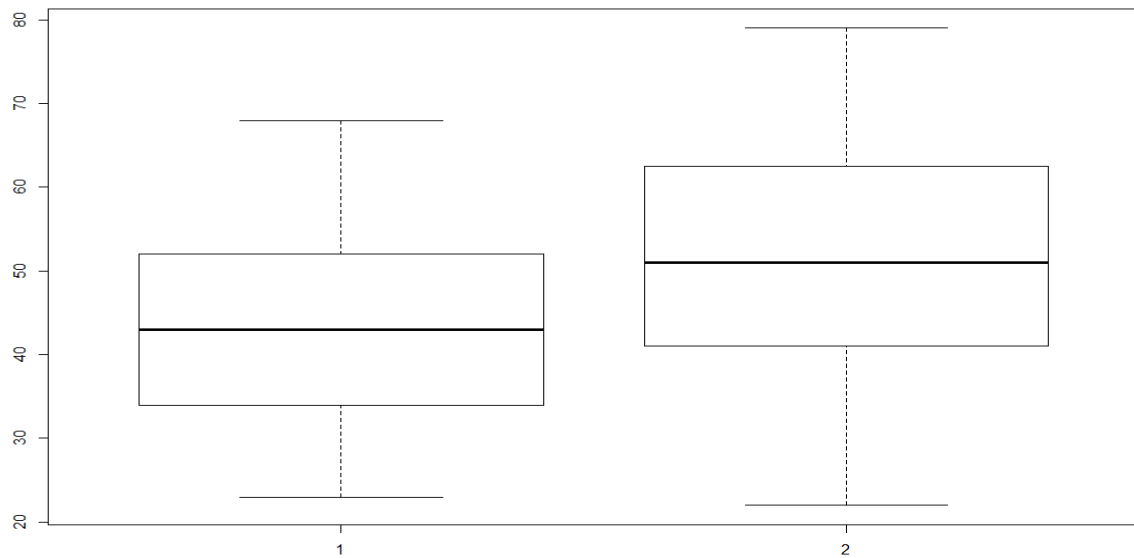
[2]Compare R: `summary(newdata$Age_new[newdata$Gen==1])` and `summary(newdata$Age_new[newdata$Gen==2])`.

2.3. Professional backgrounds

The categorization of the survey respondents' professional backgrounds (e-book p.174) is based on our questions regarding their light-related activities as well as their main occupations (x24 a-c). For the e-book, we reduced the following list of main occupations (table 3) to 9 categories (figure 6).

Table 3: The participants' main occupation based on the survey questions x24a-c (n=204).

category	number	percent
Architectural and decorative lighting design (indoor/outdoor)	37	17,9%
Science and Technology	27	13,0%
Environmental protection related to lighting	25	12,1%
Politics related to lighting (in any form, at any level)	20	9,7%
Raising awareness for light pollution	18	8,7%
Education related to lighting (as student)	15	7,2%
Lighting technology research and development	9	4,3%
Functional light planning (e.g. for streets and parking lots)	8	3,9%
Research on lighting (design, usage and/or effects)	6	2,9%
Development of urban lighting concepts/master plans	3	1,4%
Education related to lighting (as professor/teacher)	3	1,4%
Marketing and/or sale of lighting products	1	0,5%
Other	32	15,5%

Figure 6: Categories as shown in the e-book (p.174), including absolute numbers (n=204).