

THE GLOBAL SURVEY OF PHYSICISTS: A COLLABORATIVE EFFORT ILLUMINATES THE SITUATION OF WOMEN IN PHYSICS

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Funded by Henry Luce Foundation

The first two global surveys of physicists

- Surveys of women physicists conducted by American Institute of Physics for Paris and Rio conferences
- More than 1000 women from more than 50 countries responded to each survey
- Only women were included
- English only

Third Survey

- In preparation, American Institute of Physics conducted a review of surveys done by other countries since Paris conference.
 - Argentina
 - Germany
 - Ireland
 - Japan
 - Korea
 - Lithuania, Latvia, Estonia
 - Mexico
 - Nigeria
 - South Africa
- Working with team leaders, we revised the questionnaire to include some issues common to other surveys

Purposes of Third Survey

- To ensure comparability across countries— one report at the end of the process
- To show whether women physicists' experiences are different from men's
- To provide survey in languages other than English

Languages

- First survey was in English only, preventing unknown number of people from participating.
- Third survey was translated into other languages—the official UN languages plus German and Japanese
 - English
 - French
 - Russian
 - Arabic
 - Chinese
 - Spanish
 - German
 - Japanese

GLOBAL SURVEY OF PHYSICISTS

لإجراء استطلاع الرأي باللغة العربية، انقر هنا. [مرحبًا بكم في استطلاع الرأي العالمي بشأن الفيزيائيين](#)

欢迎参与全球物理工作者调查。 [以中文参与调查，请点击此处](#)

Welcome to the Global Survey of Physicists. [To take the survey in English, click here](#)

Bienvenue à l'étude mondiale à l'intention des physiciens et physiciennes. [Pour participer à cette étude en français, cliquez ici](#)

Wir möchten Sie bei der globalen Umfrage unter Physikerinnen und Physikern begrüßen. [Klicken Sie hier, um die Umfrage in deutscher Sprache auszufüllen](#)

物理学者に関する世界的調査へのご協力ありがとうございます。
[日本語でアンケートにお答えいただく場合は、ここをクリックしてください](#)

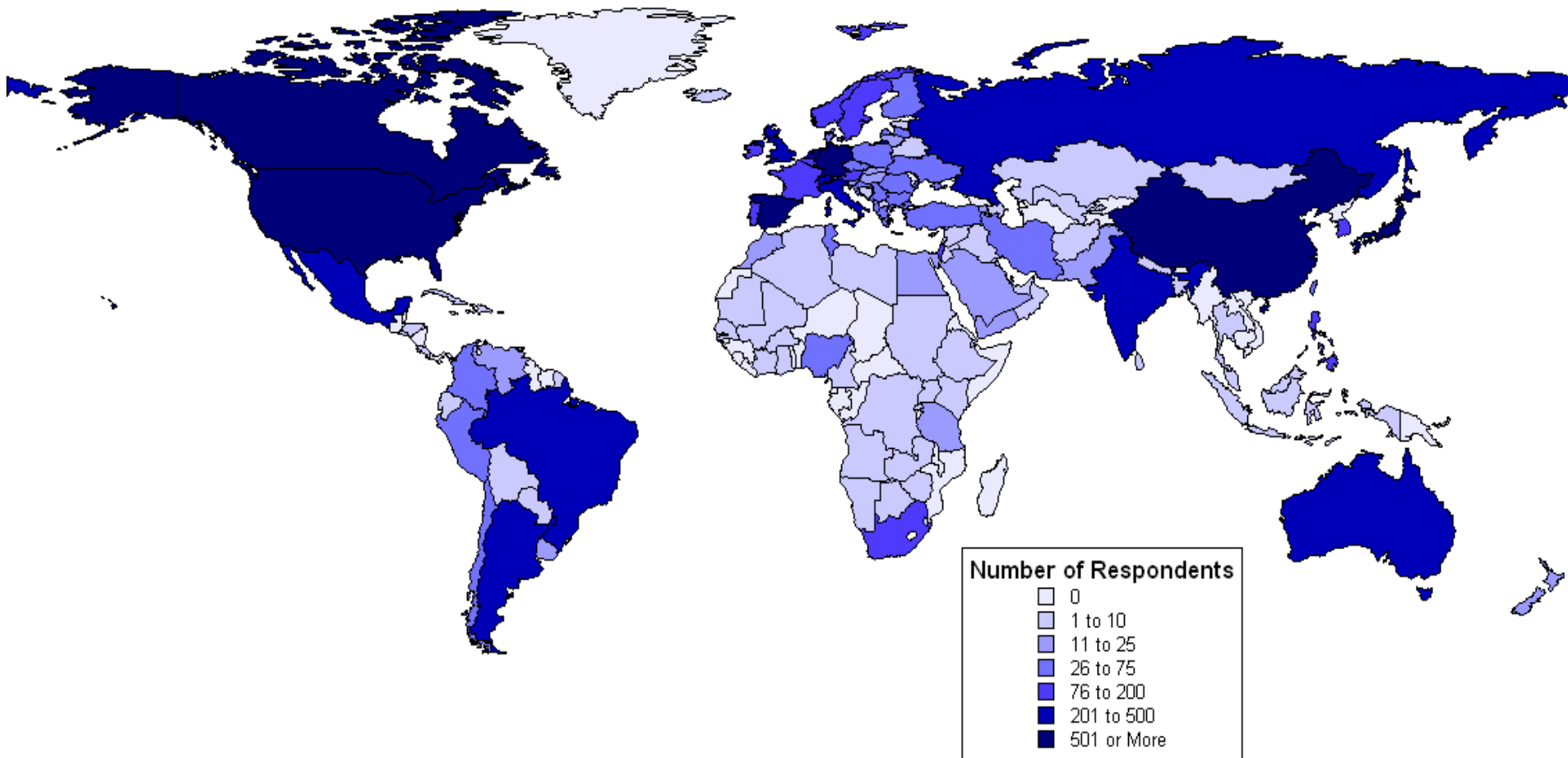
Добро пожаловать во всемирный опрос физиков. [Чтобы пройти опрос на русском языке, нажмите здесь](#)

Le damos la bienvenida a la Encuesta global de profesionales de la física. [Para hacer la encuesta en español, haga clic aquí](#)

How the survey was distributed

- Web survey
- Team leaders from Seoul conference were asked to distribute to their contacts via e-mail
- Survey itself contained instructions to forward to colleagues
- Sample surveys were drawn by American Physical Society and German Physical Society, so their results are representative of their membership.
- Open from ~Oct. 2009-Oct. 2010

Global Survey of Physicists; Most Recent Country of Respondent



Who Responded?

- 130 countries
- 14,932 respondents
- Language of responses
 - 60% English
 - 11% German
 - 11% Spanish
 - 7% Japanese
 - 5% Chinese
 - 3% French
 - 2% Russian
 - 1% Arabic

Who Responded?

- By Region:
 - 37% Europe
 - 32% North America
 - 17% Asia
 - 7% South America
 - 3% Africa
 - 2% Middle East
 - 2% Australia

Who Responded?

- 75% from Very Highly Developed Countries (21% Female)
- 25% from Less Developed Countries (27% Female)
- 1% had been to Paris, Rio, or Korea
 - (weighted n=172)
- Employed in all types of jobs

Very Highly Developed Nations

United Nations, 2010

- Norway
- Australia
- New Zealand
- United States
- Ireland
- Liechtenstein
- Netherlands
- Canada
- Sweden
- Germany
- Japan
- Korea (Republic of)
- Switzerland
- France
- Israel
- Finland
- Iceland
- Belgium
- Denmark
- Spain
- Hong Kong, China (SAR)
- Greece
- Italy
- Luxembourg
- Austria
- United Kingdom
- Singapore
- Czech Republic
- Slovenia
- Andorra
- Slovakia
- United Arab Emirates
- Malta
- Estonia
- Cyprus
- Hungary
- Brunei Darussalam
- Qatar
- Bahrain
- Portugal
- Poland
- Barbados

The Survey Includes:



Educational
Background

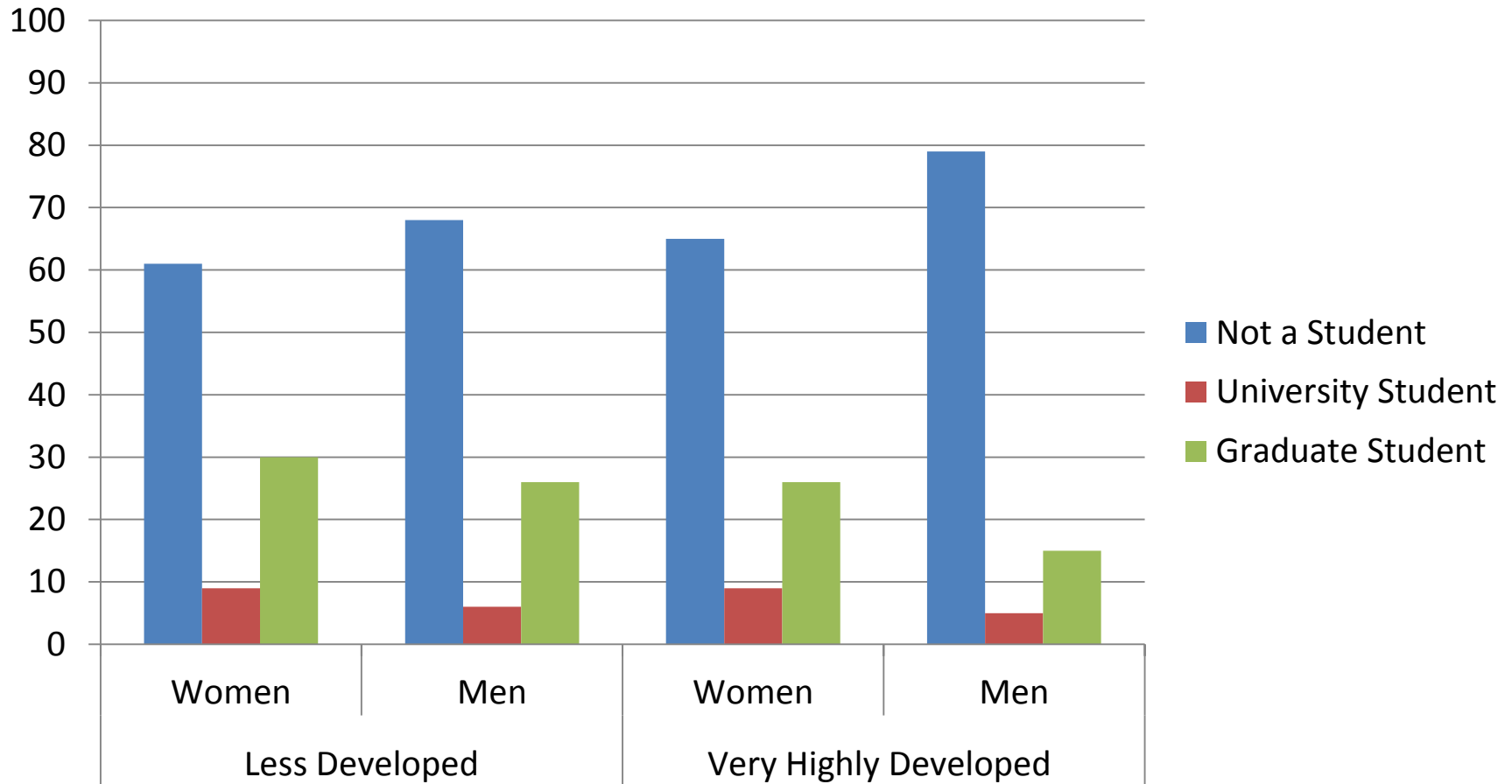
Early Career
and Current
Employment

Marriage,
Family and
Housework

Preliminary Results

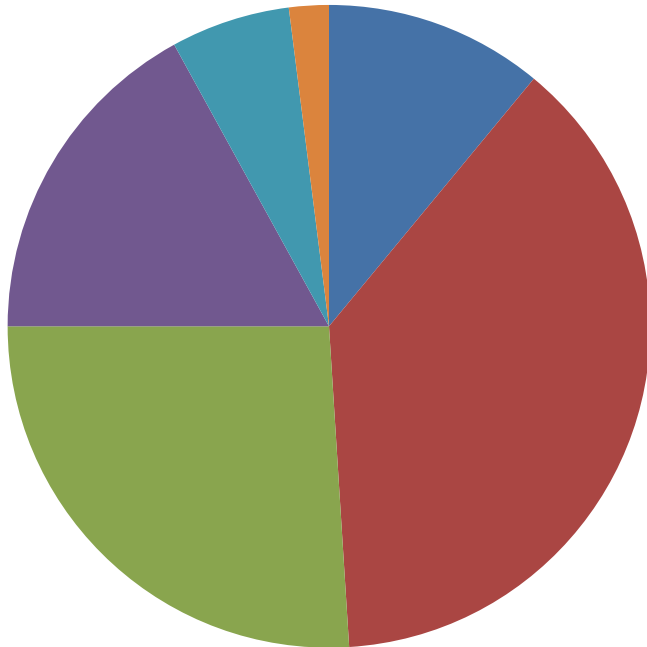
EDUCATION

Percentage of respondents who are students

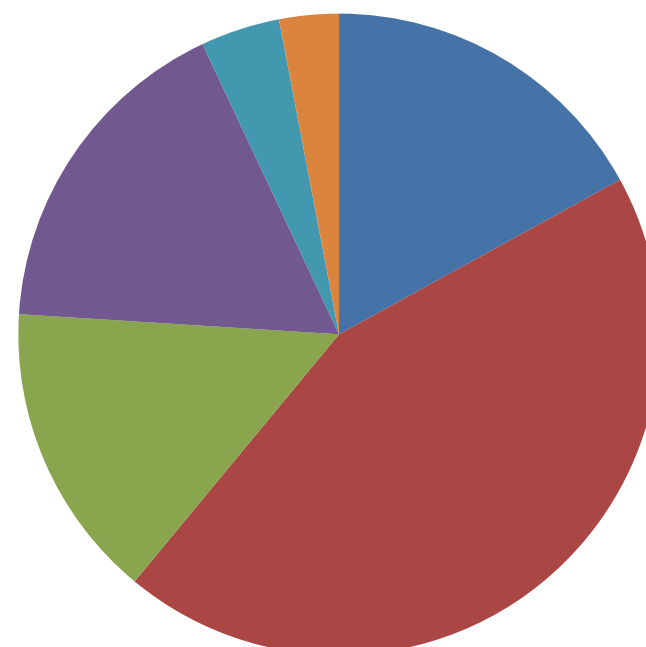


When did you first think of choosing physics as your career?

Less Developed

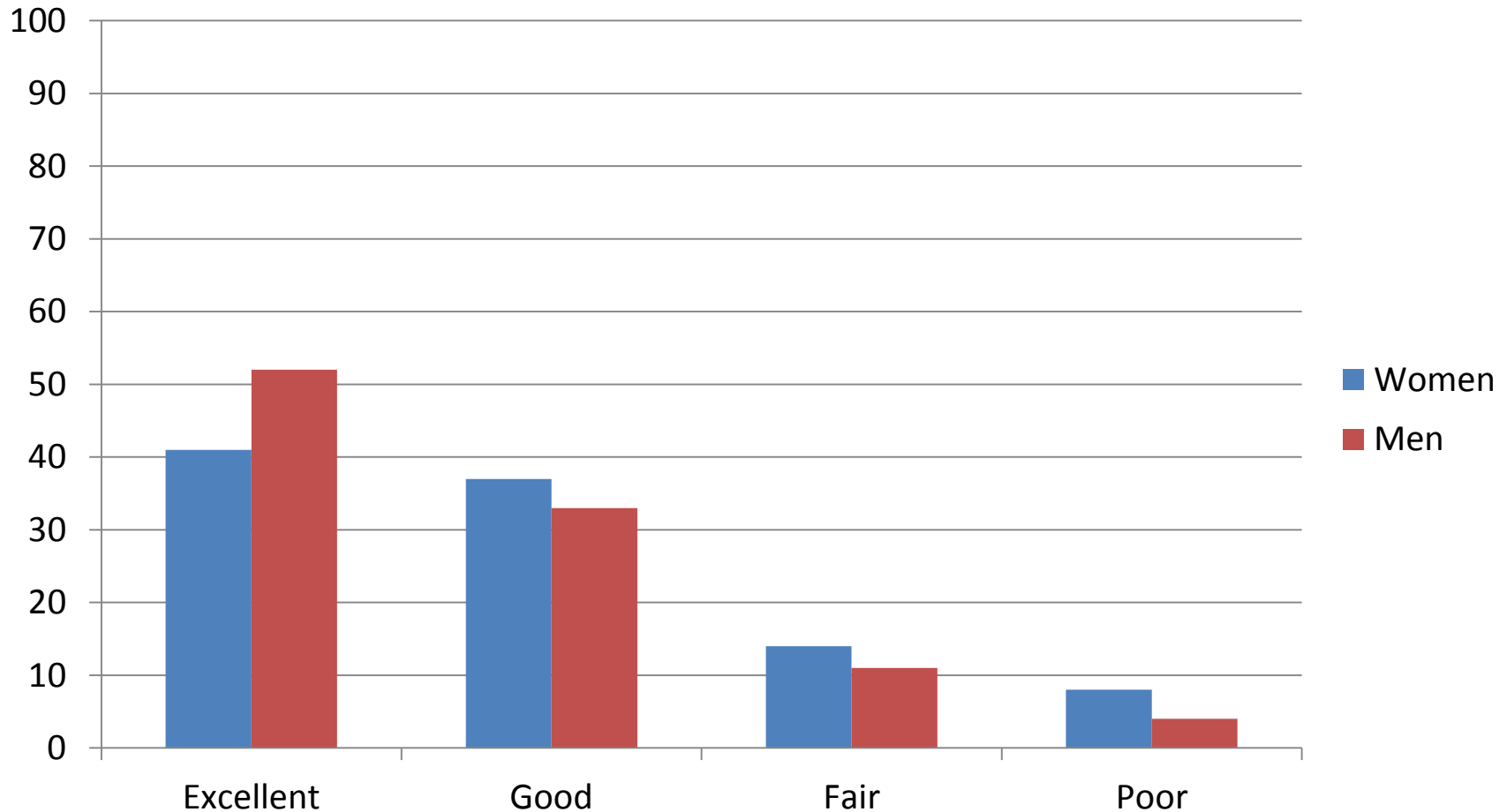


Very Highly Developed



- Before secondary school
- During secondary school
- Between secondary school and university
- While working toward university degree
- Between university degree & doctorate
- During or after doctoral studies

Students' quality of relationships with doctoral advisors



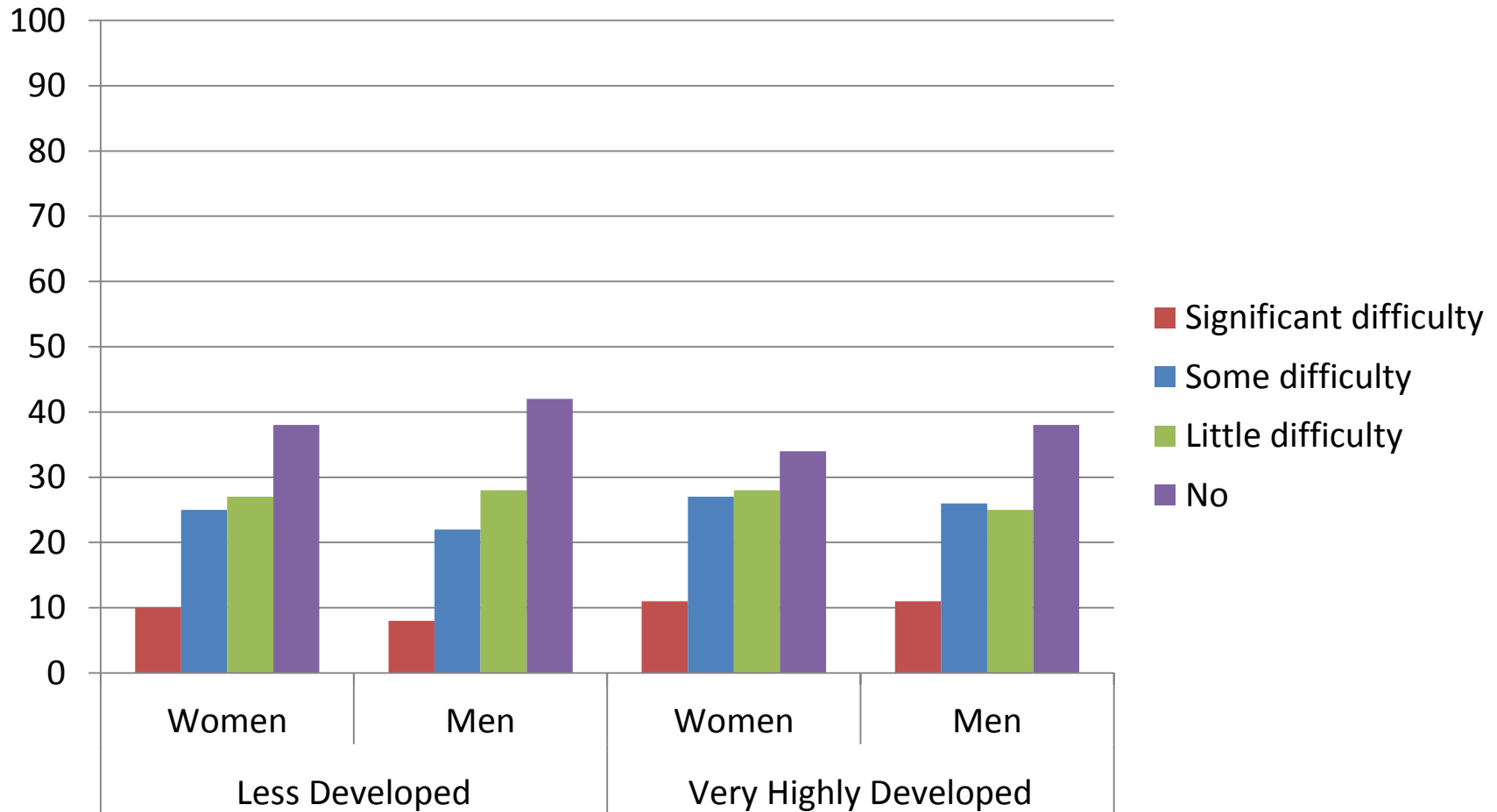
Preliminary Results

PROFESSIONAL OPPORTUNITIES, RESOURCES, AND WORKPLACE

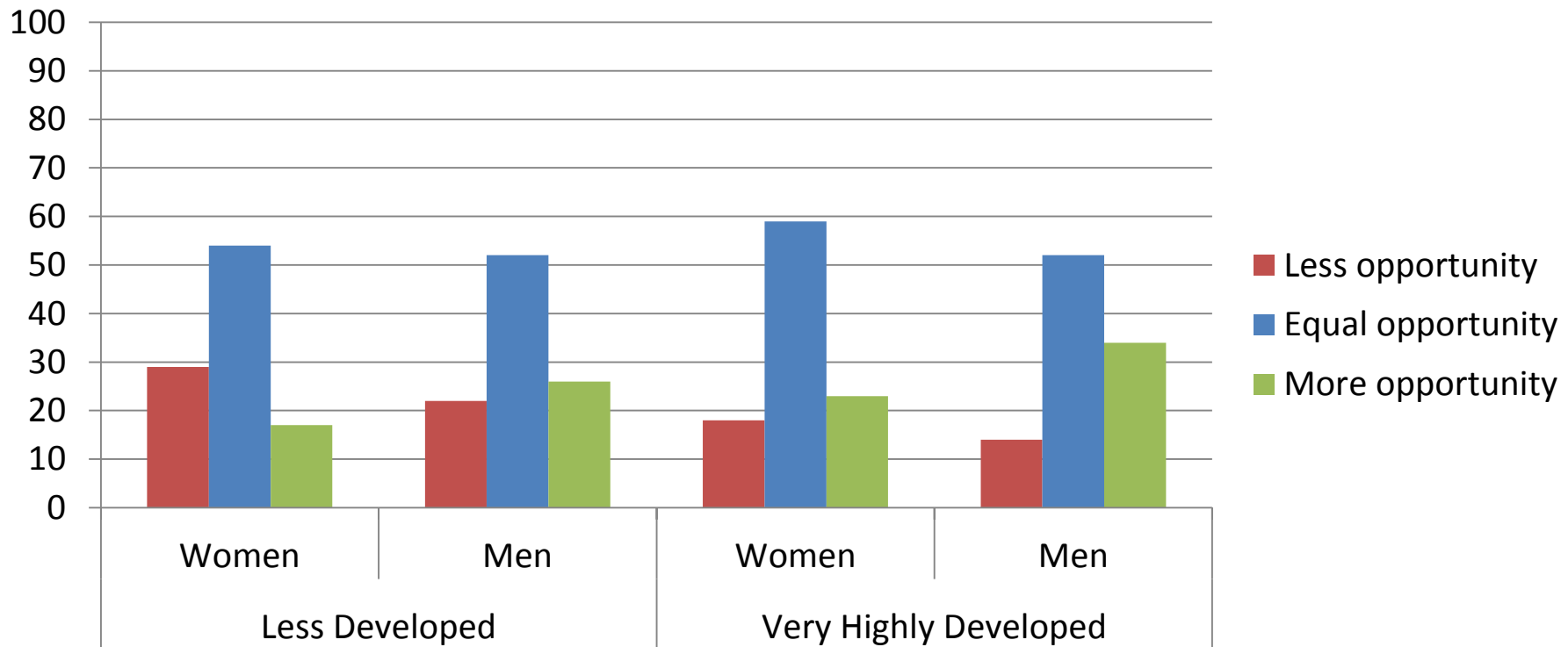
Have you participated in the following?

% Yes	Less Developed		Very Highly Developed	
	Women	Men	Women	Men
Given a talk at a conference as an invited speaker	51	67	58	73
Attended a conference abroad	75	81	83	87
Conducted research abroad	54	71	61	69
Acted as a boss or manager	38	53	46	61
Served as editor of a journal	16	24	11	19
Served on committees for grant agencies	22	37	26	36
Served on important committees at your institute or company	50	62	48	60
Served on an organizing committee for a conference in your field	48	59	48	55
Advised undergraduate students	82	84	69	74
Advised graduate students	63	77	58	70
Served on thesis or dissertation committees (not as an advisor)	52	66	37	52

Have you had any difficulty finding positions or professional opportunities?



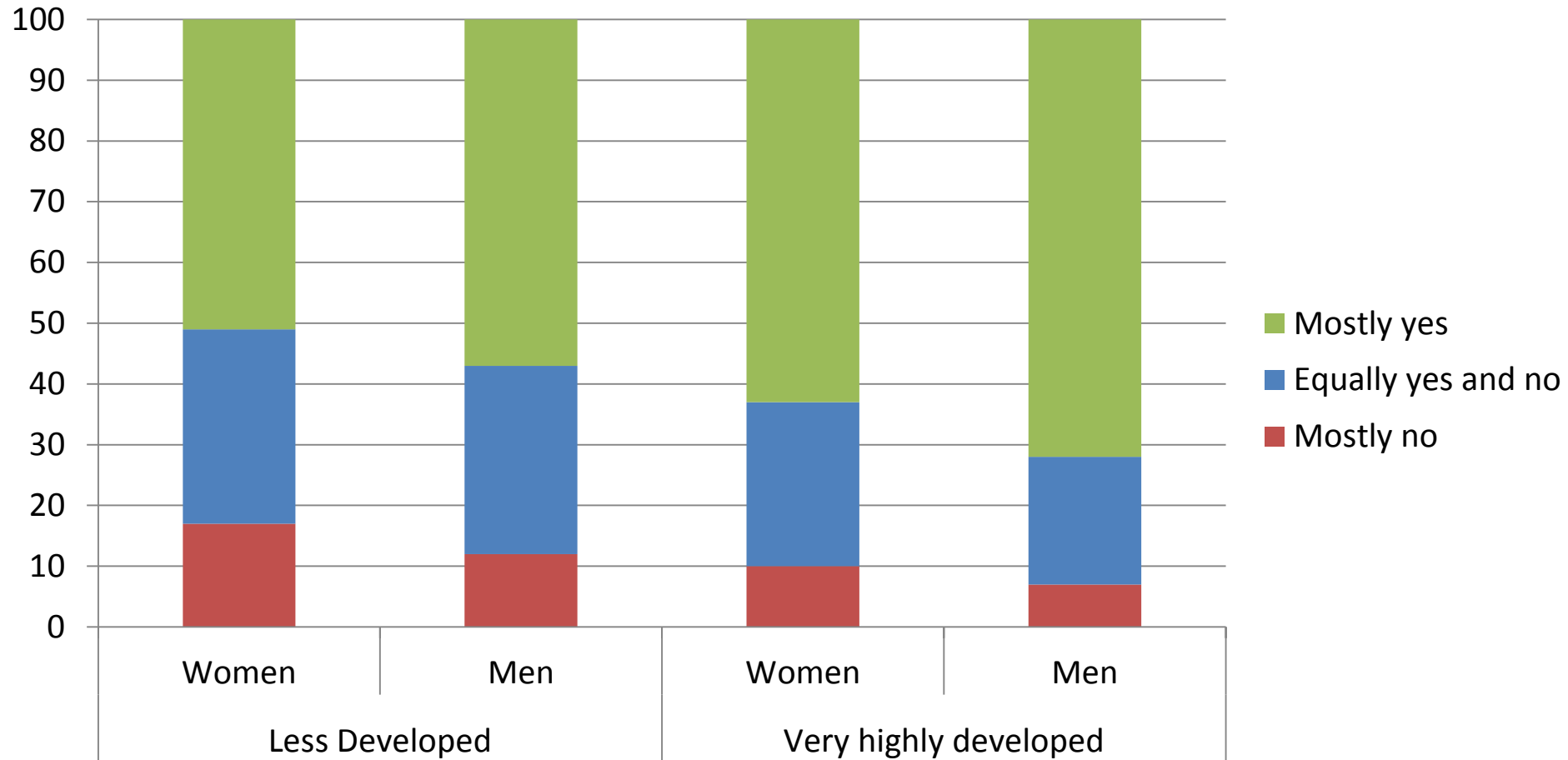
Compared to your colleagues, did you have the same, fewer, or more opportunities to conduct research abroad?



Do you have enough of the following to conduct or present your research?

% Yes	Less Developed		Very Highly Developed	
	Women	Men	Women	Men
Funding	34	51	52	60
Office space	64	74	72	77
Lab space	42	47	46	52
Equipment	42	49	58	64
Travel money	31	47	57	64
Clerical support	22	38	30	43
Employees or students	42	53	33	43

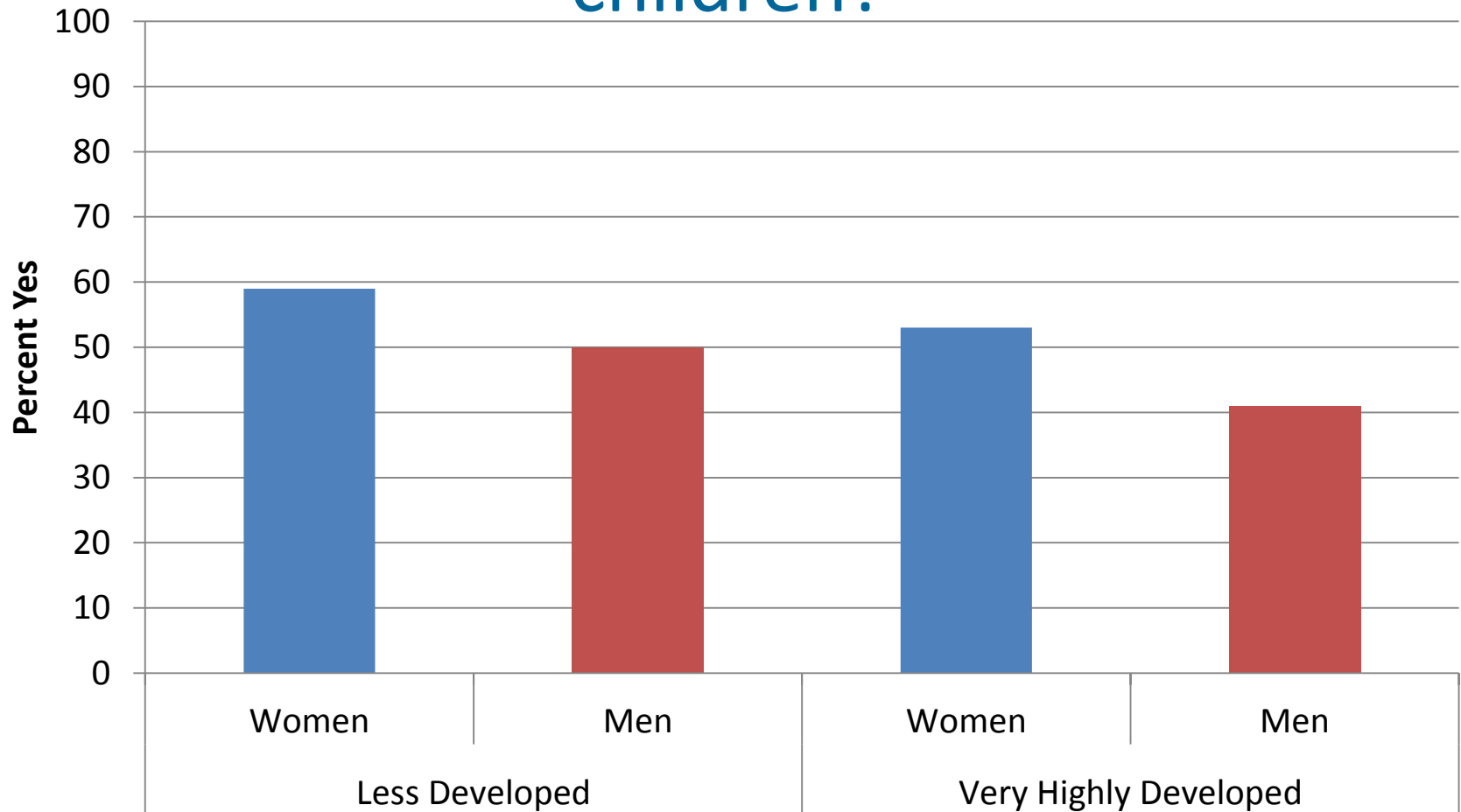
I feel comfortable raising concerns with my boss or manager



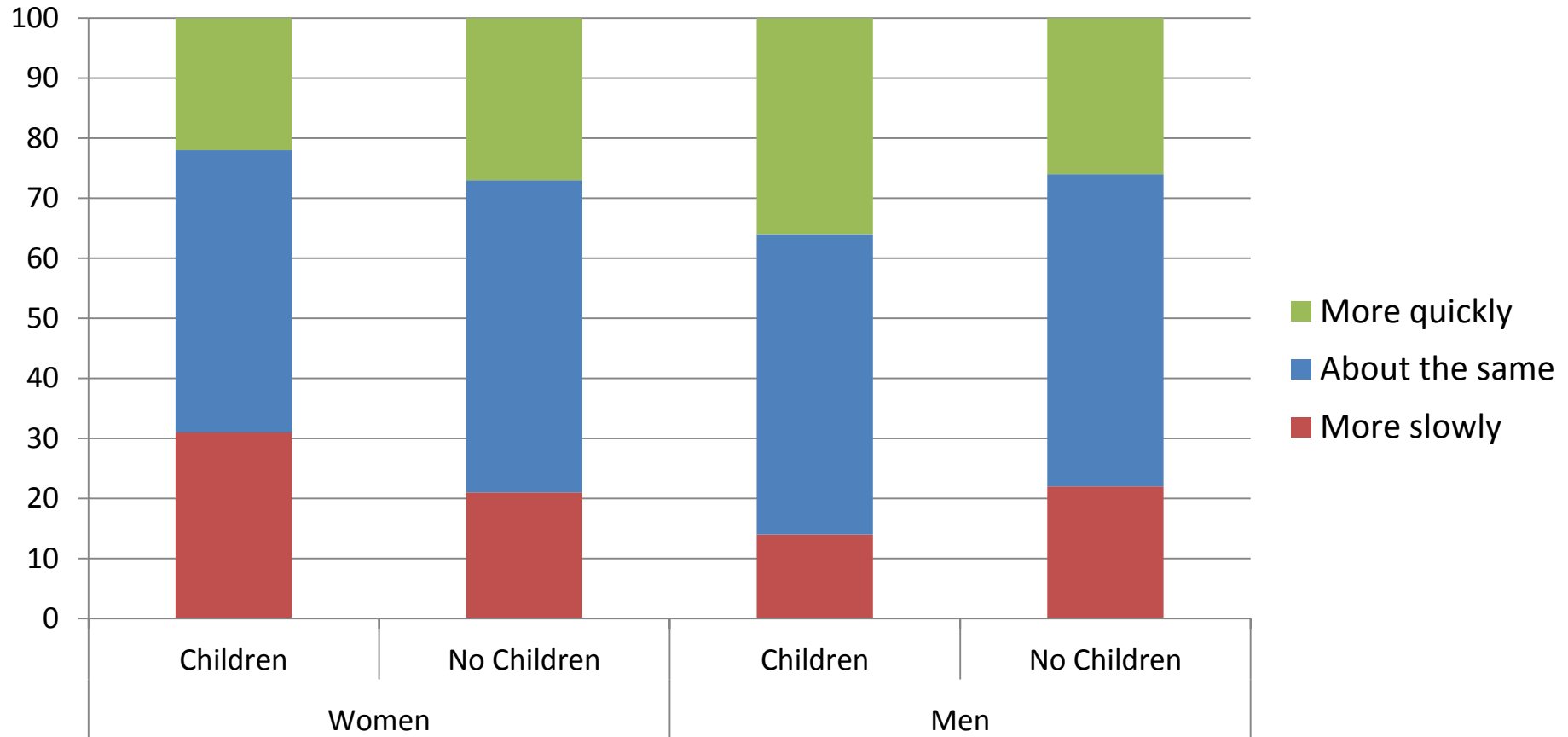
Preliminary Results

WORK AND FAMILY

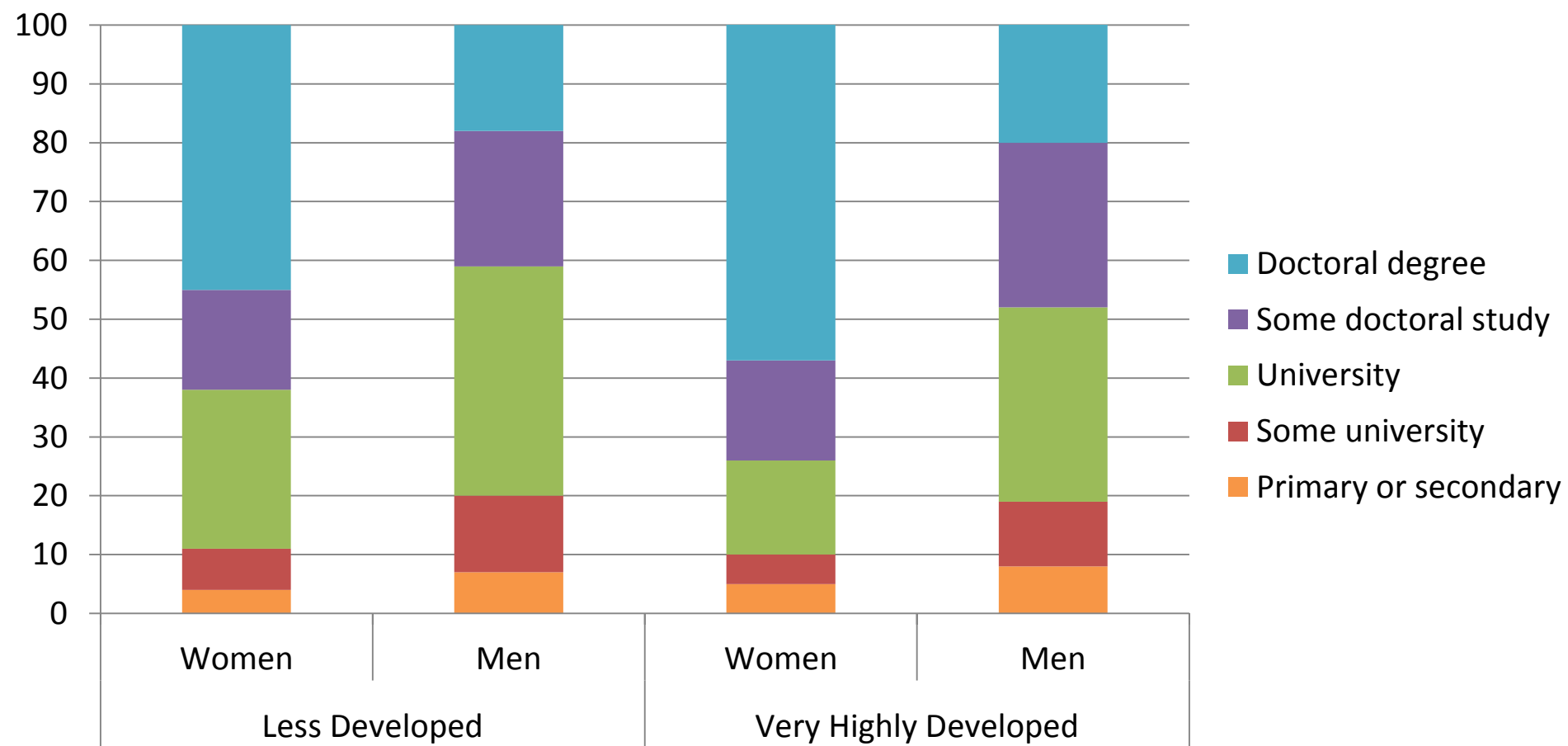
Has your career changed your personal life, such as decisions about marriage or children?



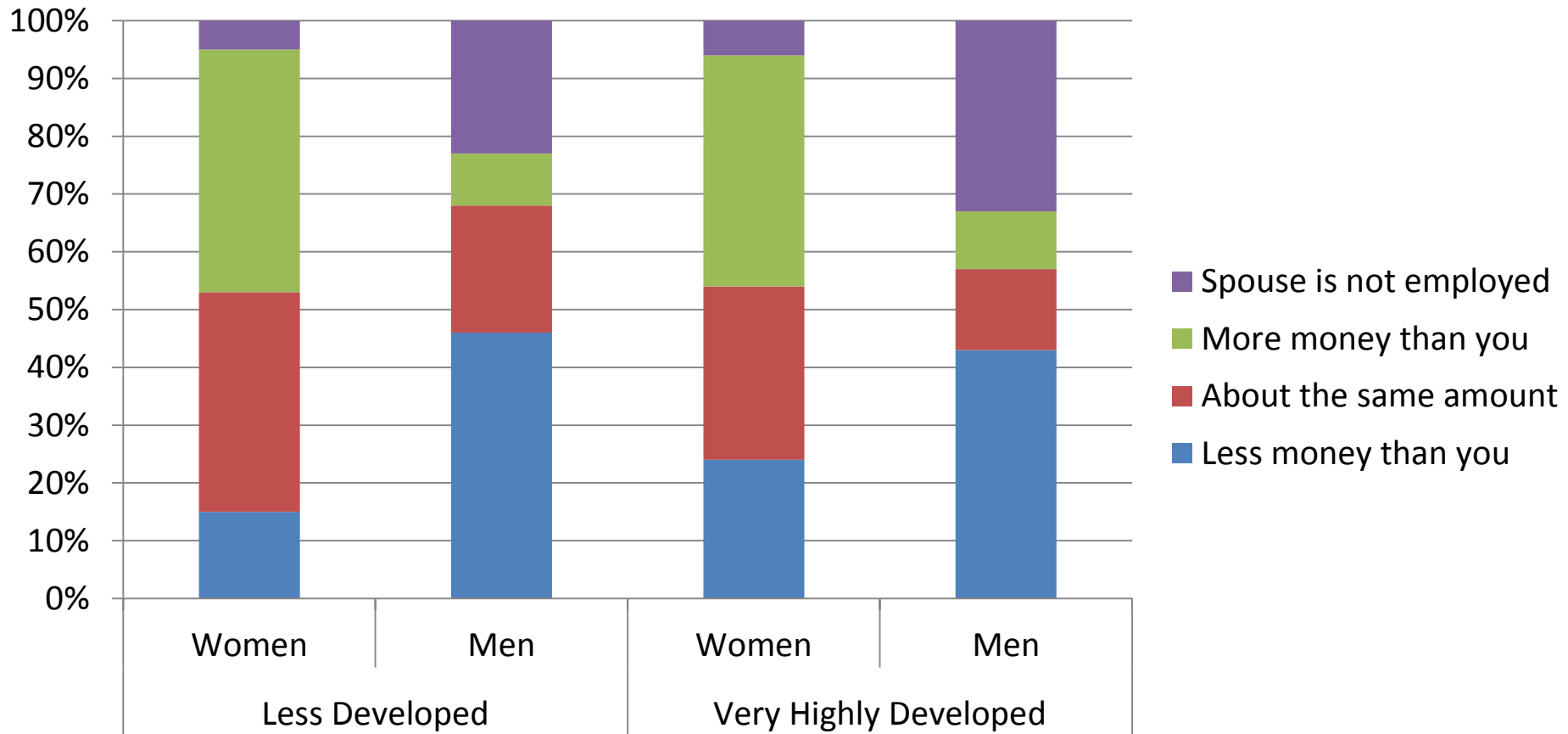
Compared to colleagues, how quickly have you progressed in your career?



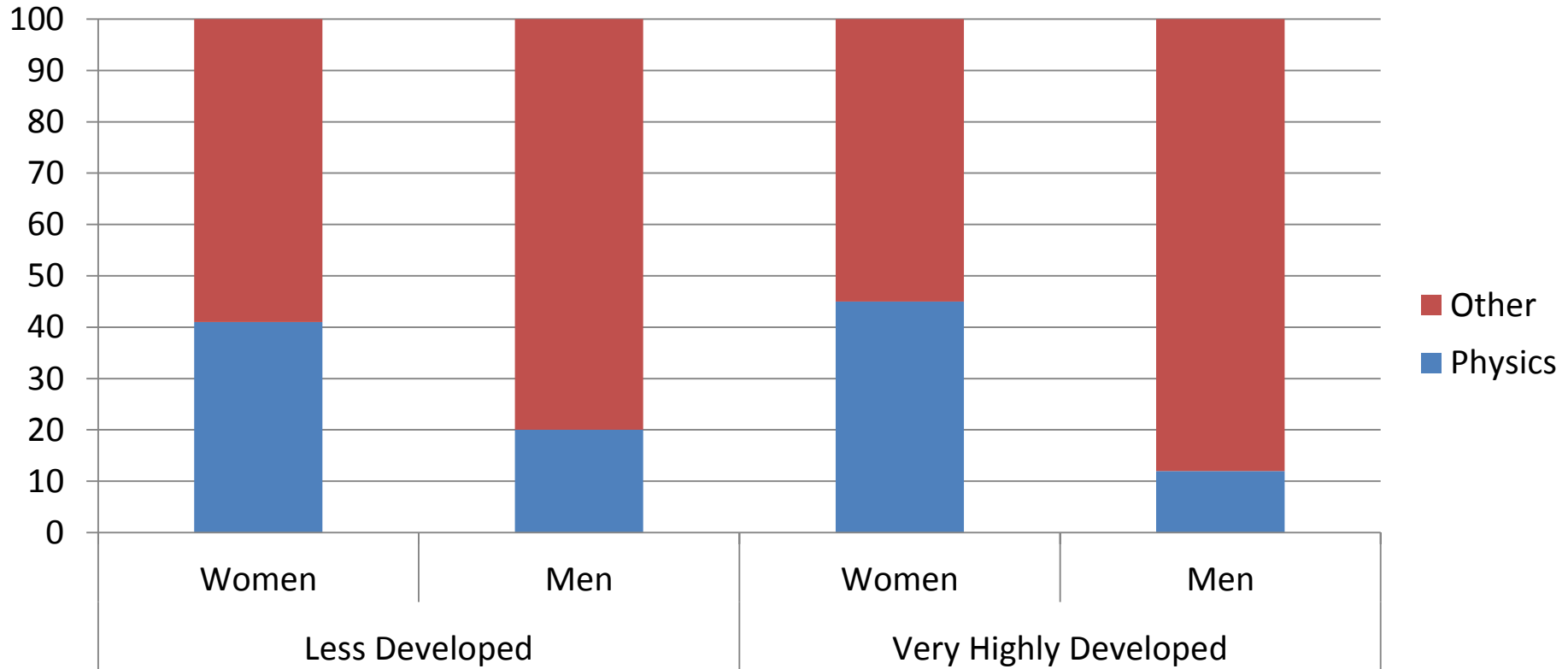
How much school did your partner or spouse complete?



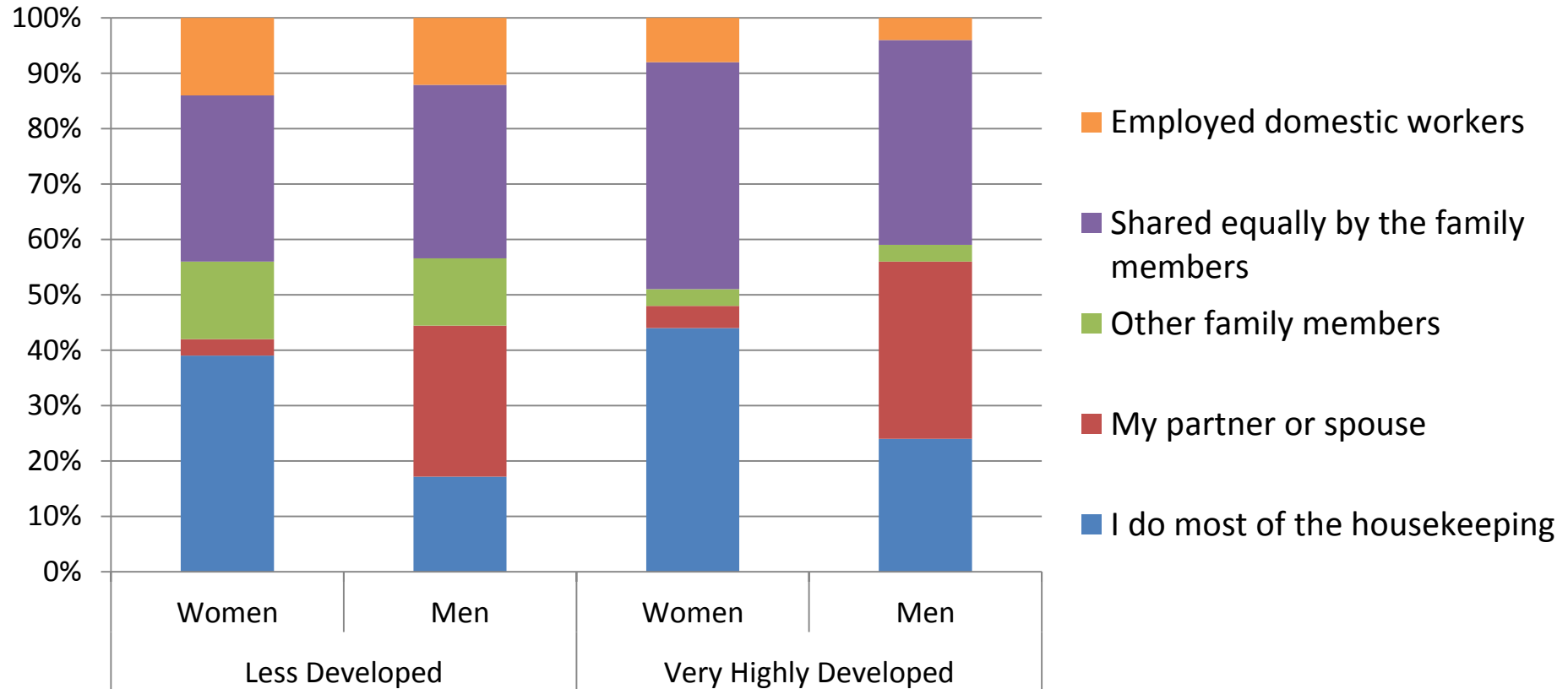
If your partner is employed, does he or she earn:



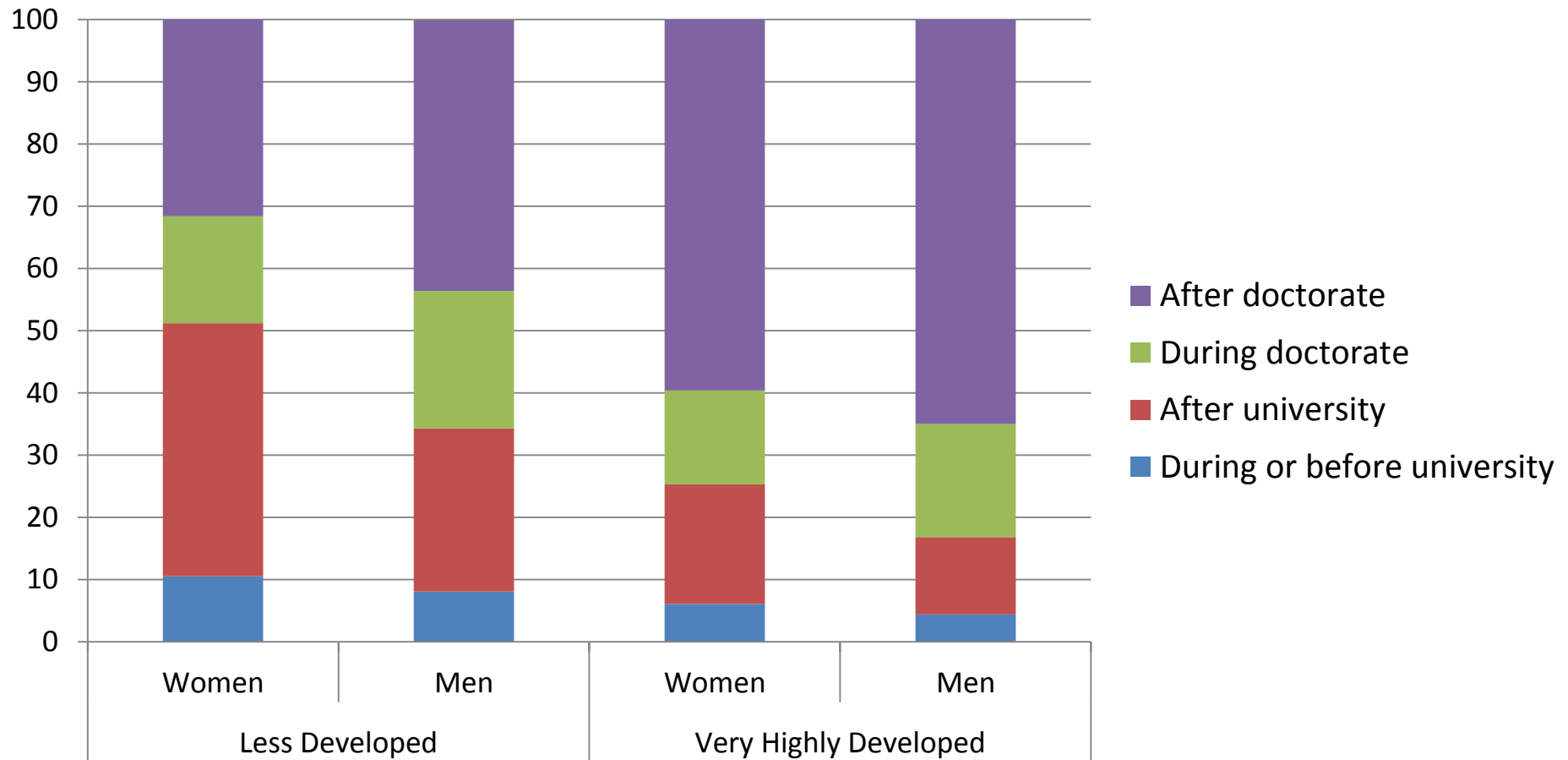
Is your partner or spouse employed in the field of physics?



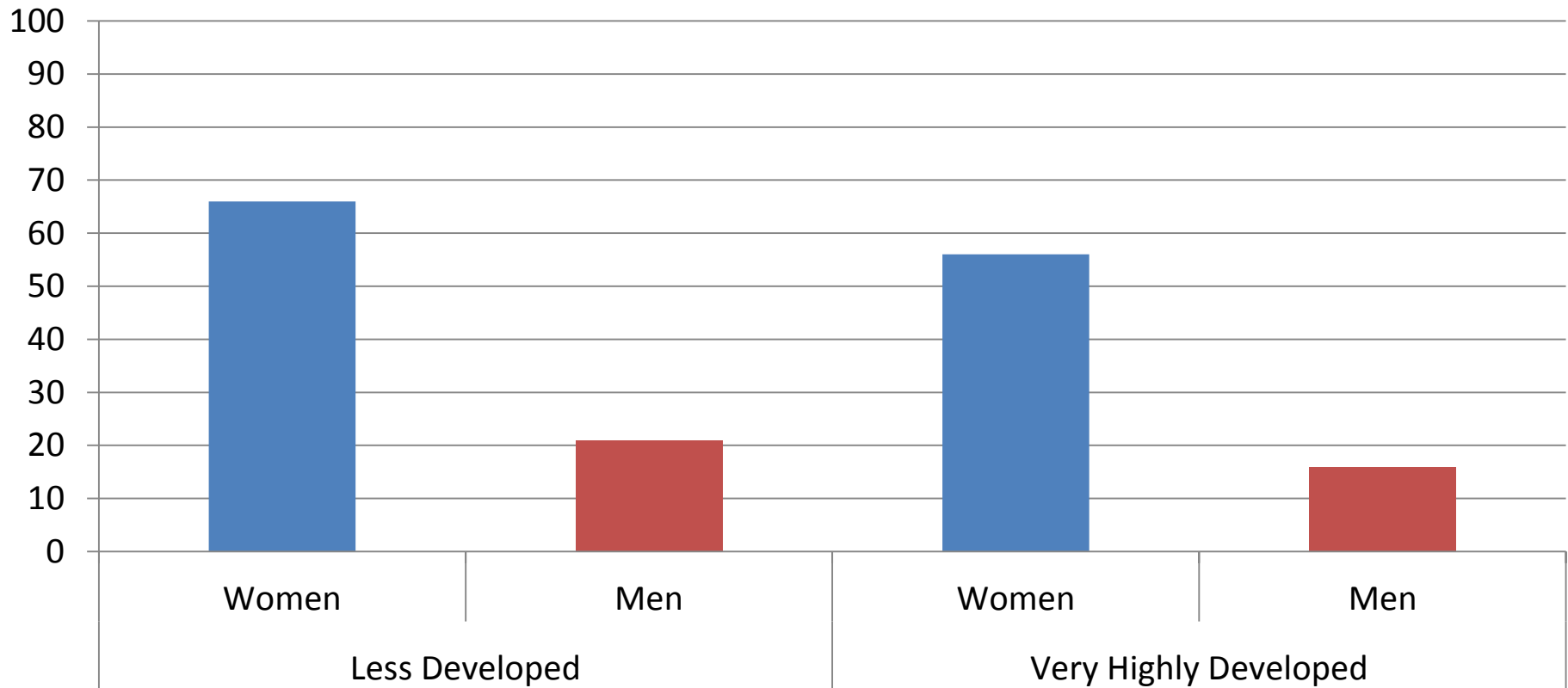
Who is responsible for the majority of the housekeeping in your household?



When did you have children?

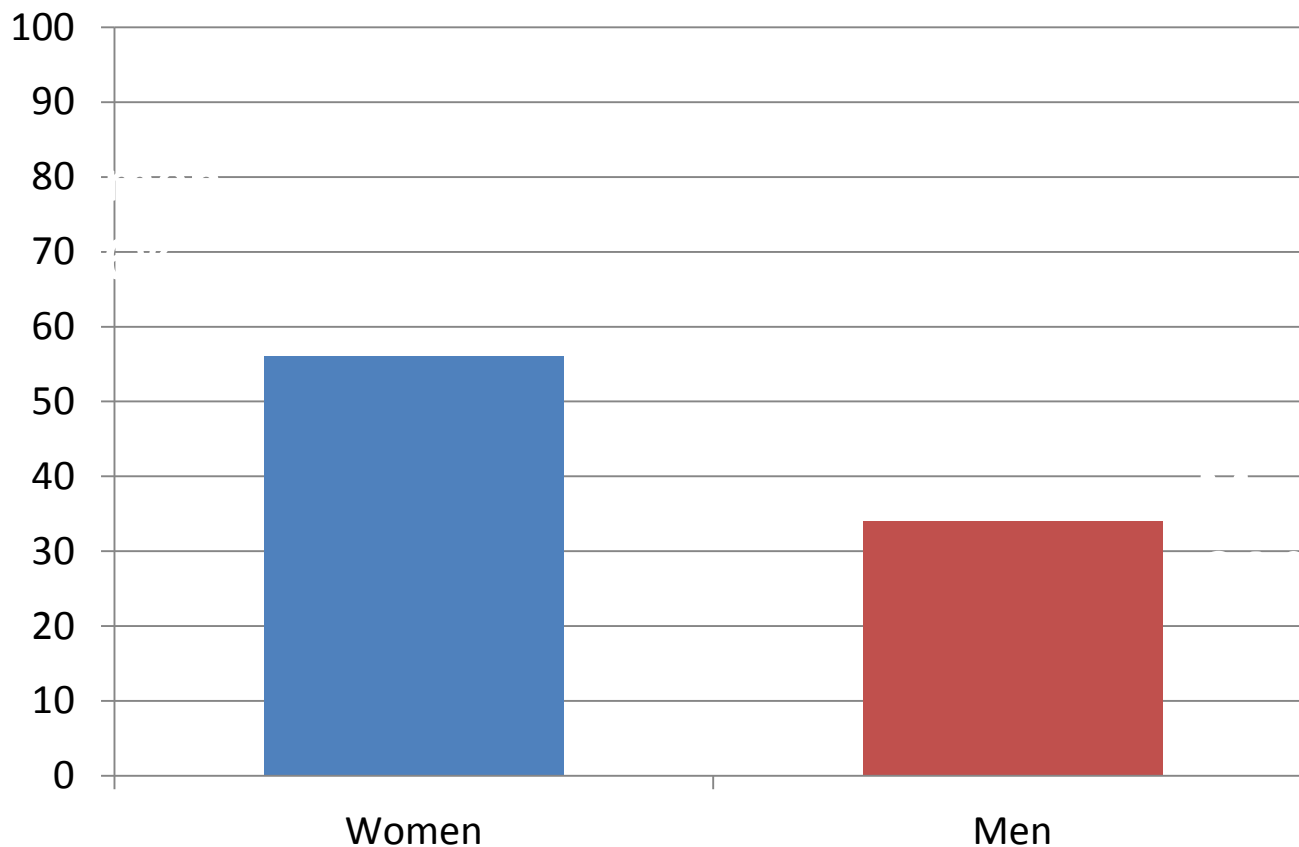


Percentage who had significant breaks or interruptions in doctoral studies



* Limited to respondents whose first child was born during their doctoral studies

Has the search for quality affordable child care been difficult for you?

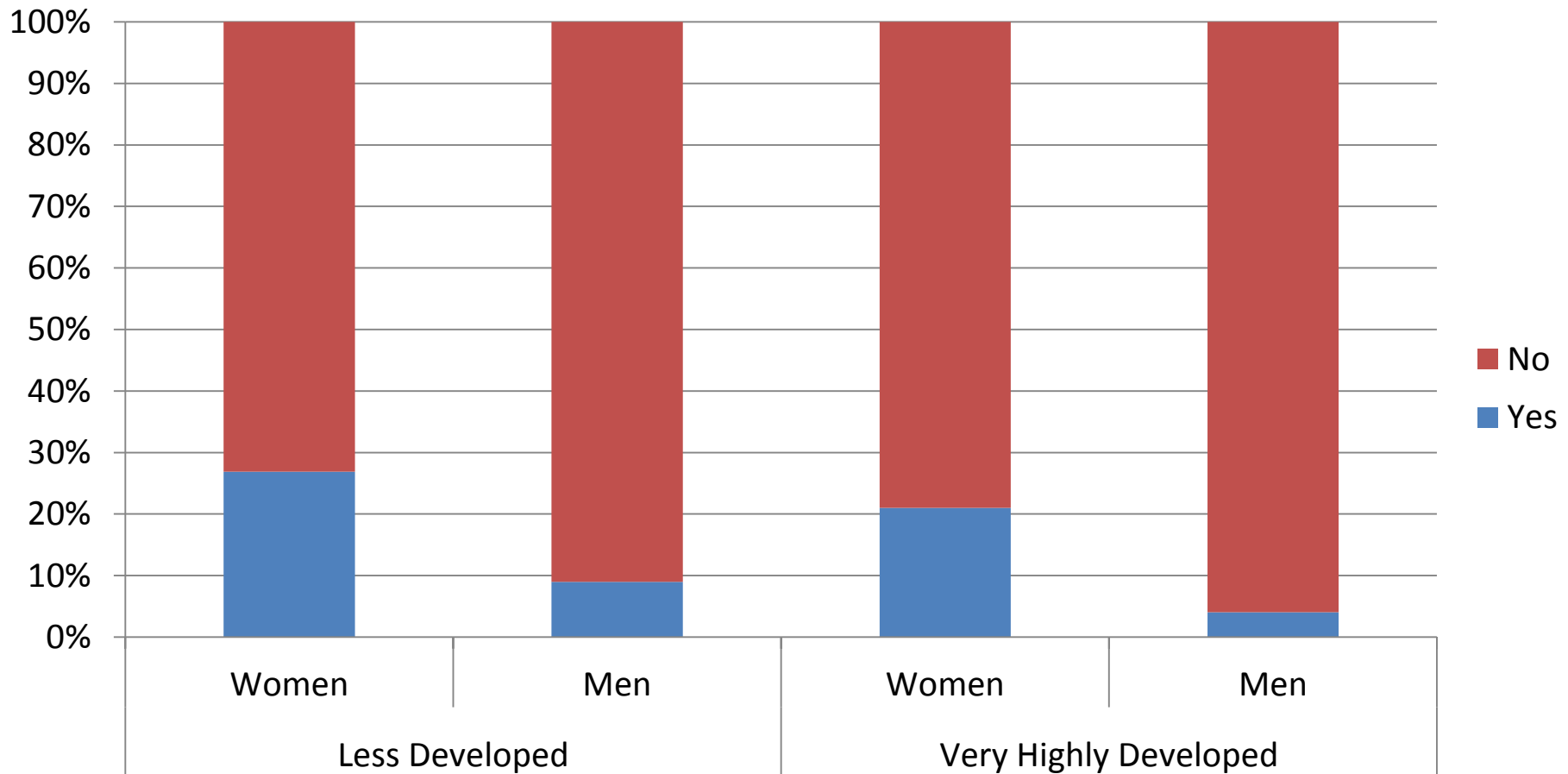


64% of female graduate students with children had difficulty finding care

How did your work or career change because you are a parent?

	Women	Men
I chose a less demanding or more flexible work schedule	39	20
I changed my employer or field of employment	7	4
I spent significantly less time at work	35	18
I was more productive and efficient at work	29	15
My career or rate of promotion slowed significantly	34	9
I became a stay at home parent	6	1
My work or career did not change significantly	32	65

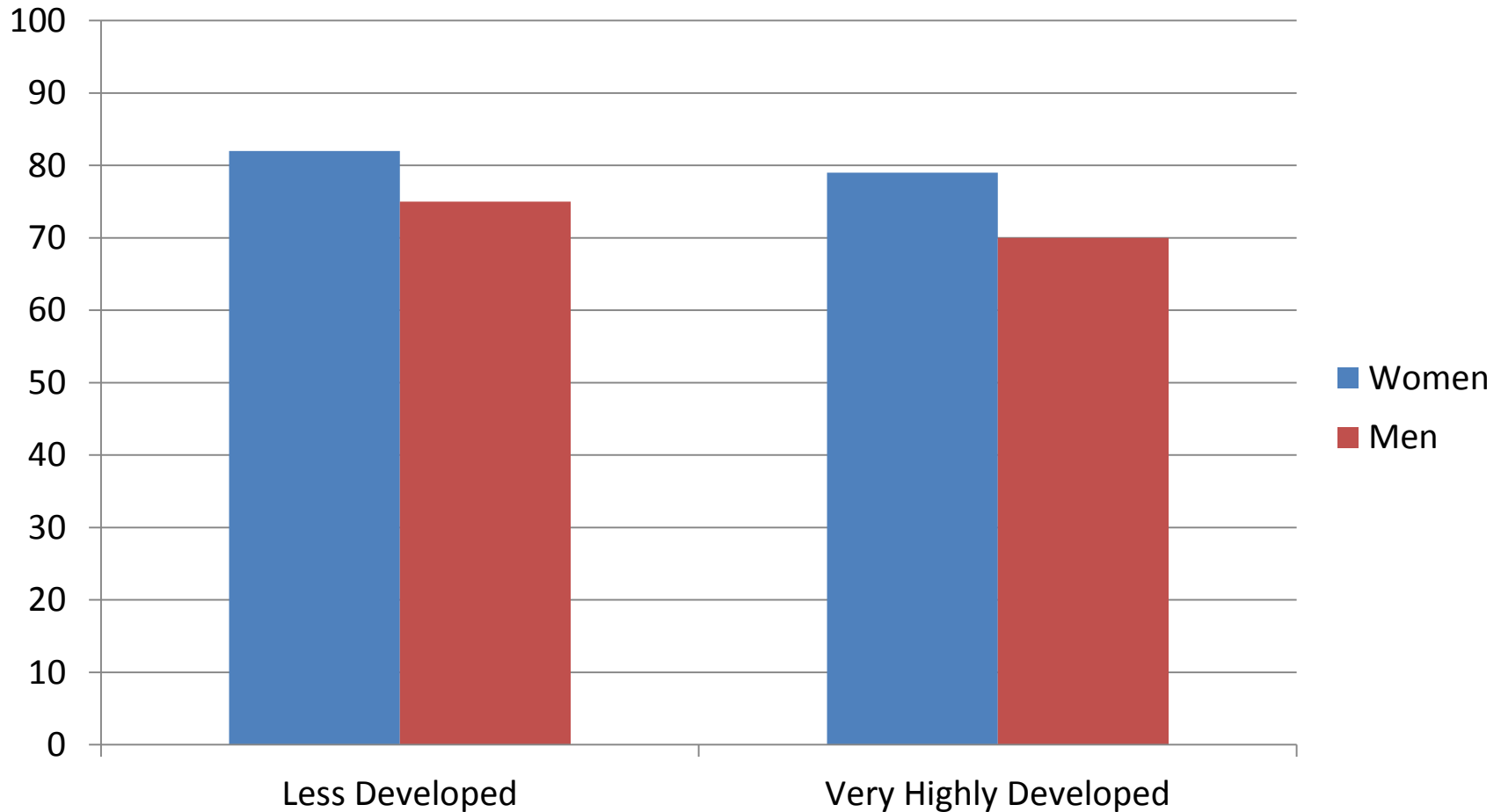
Did your employer assign less challenging work to you when you became a parent?



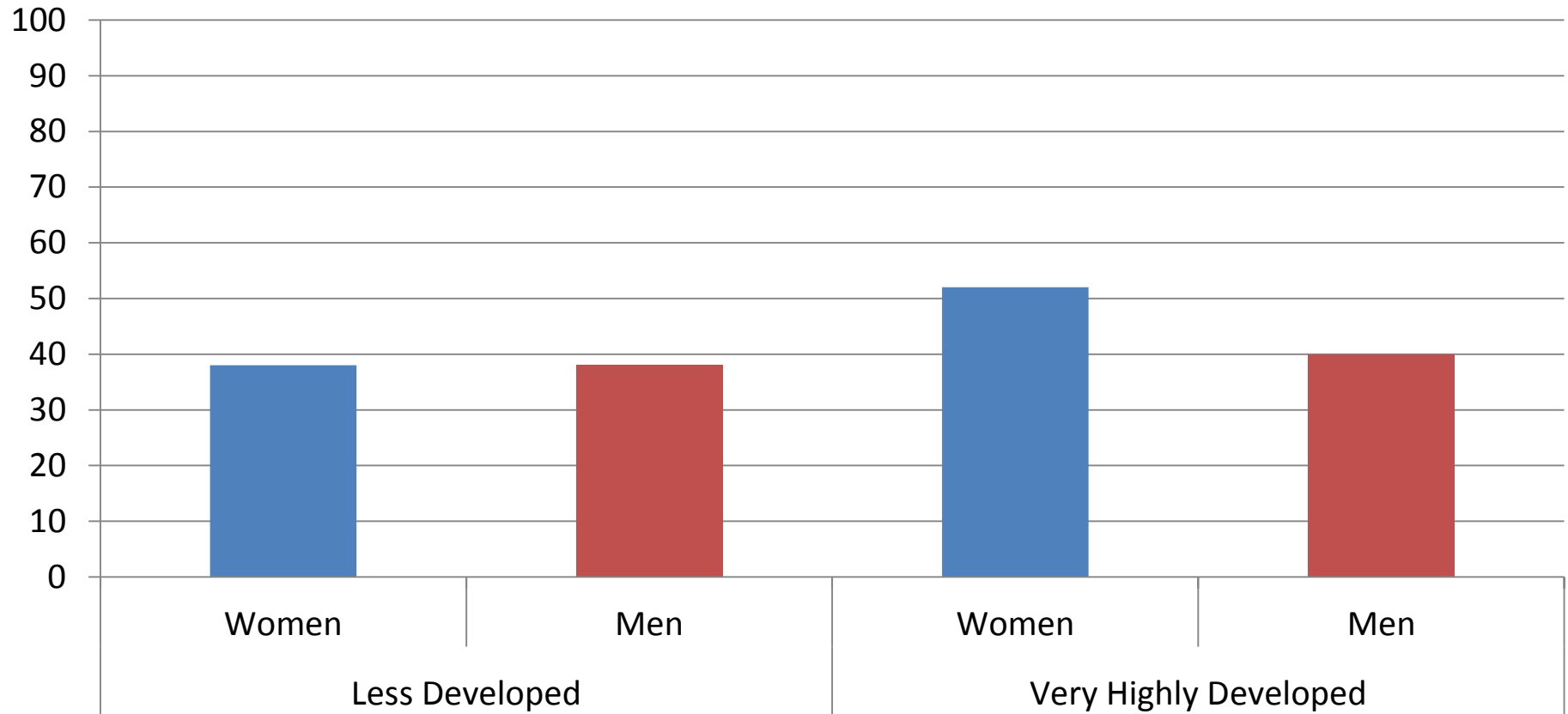
Preliminary Results

THE BAD NEWS FIRST

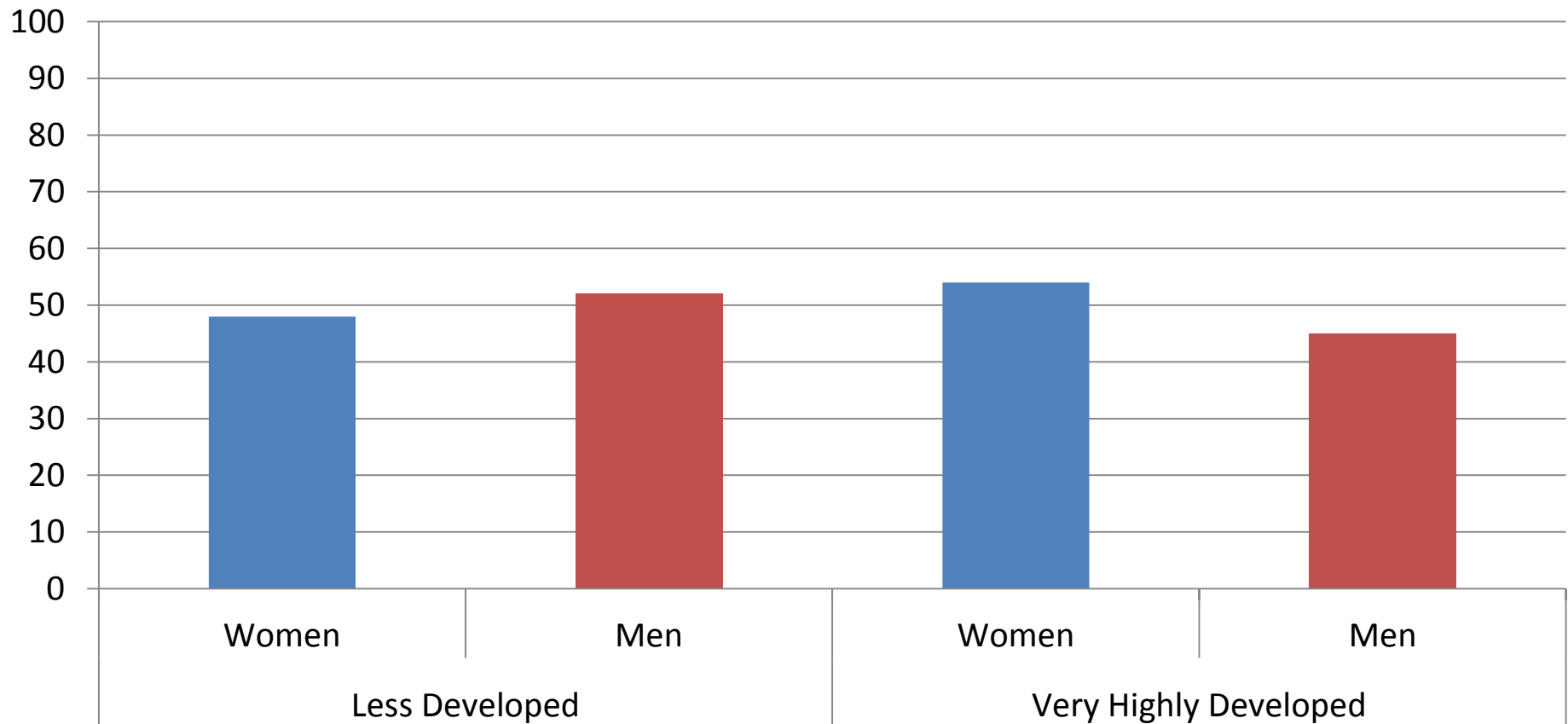
Percentage of respondents who have felt discouraged about physics



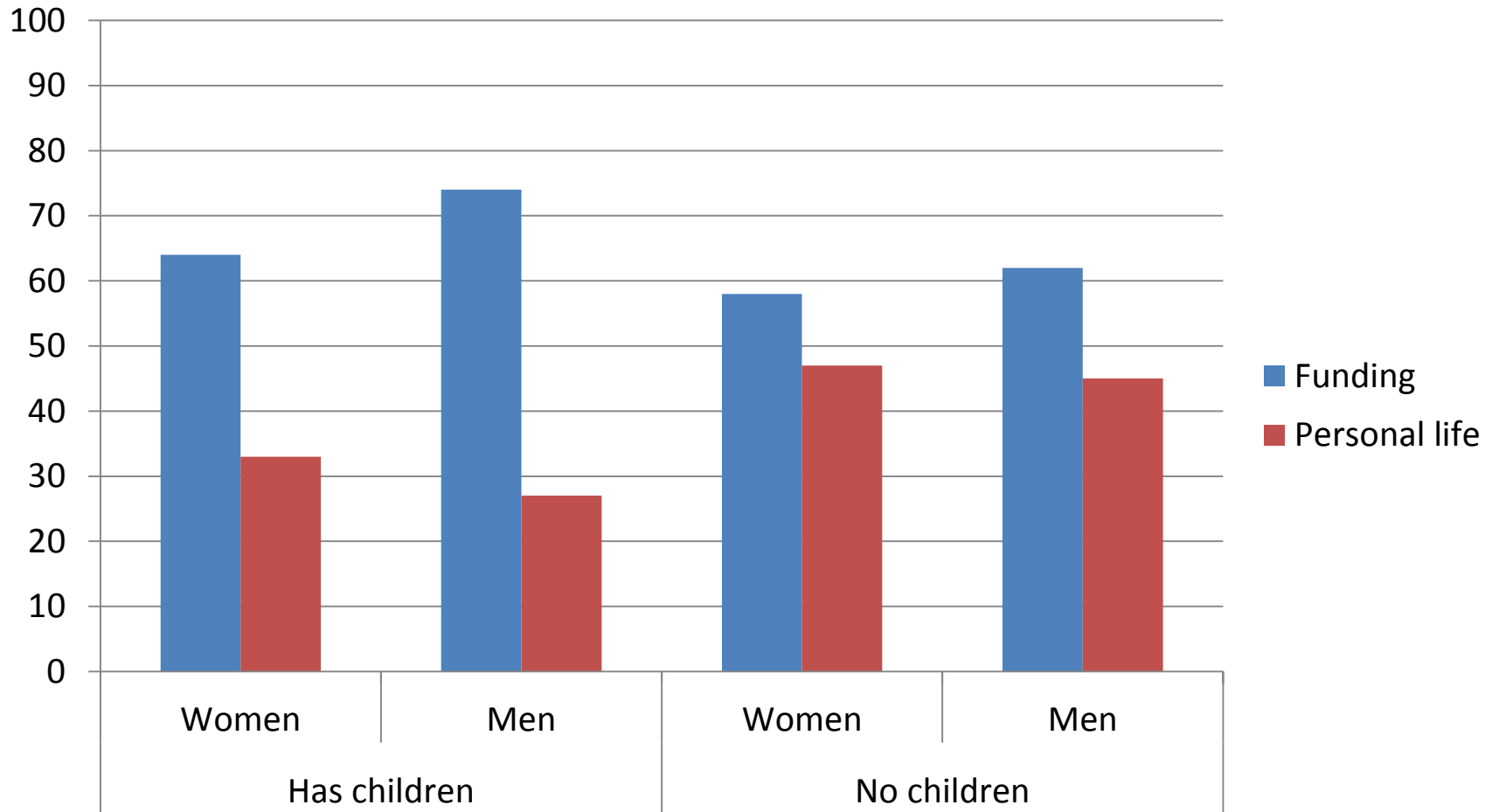
Percent who felt discouraged because of interaction with colleagues



Percent who felt discouraged about workplace environment



Percent who felt discouraged about funding and personal life



Would you choose physics again?

- 89% said yes

Next Steps for Survey Data

- Additional analyses
- Translation and analysis of open-ended responses
- Full Report
- Funding Dependent: Specialized Reports
 - In-Depth Topic-Specific Reports
 - Regional and Country Level Reports

Areas of concern

Education

- Recognize the importance of early educational experiences for both men and women in choosing physics, especially for very highly developed countries.
- Examine why women physicists are less likely to rate their relationships with their advisors as excellent.

Areas of concern

Professional opportunities

Women physicists may have more difficulty finding professional opportunities than men.

- International opportunities
- Invitations to speak
- Supervisory experiences
- Serving on committees that have influence
- Serve as editor of journal
- Advising graduate students & serving on committees

Areas of concern

Resources

Recognize that women physicists may have less access to resources that can make a difference in their careers.

- Funding
- Students and employees
- Office space
- Lab space
- Equipment
- Travel money
- Clerical support

Areas of concern

Work and family

- Women physicists' careers may have more effects on their family and personal lives than men's careers.
- Male physicists are more likely to have wives who don't work or do not have professional employment. Therefore, men are more likely to have someone who can take care of home and family than working women physicists.
- Recognize the effects that children have on women's careers in physics. Children, while providing great personal satisfaction for women and men, may cause women's progress in physics to be slower than that of men's.

Areas of concern

Workplace

- Examine why women physicists in very highly developed countries are more dissatisfied with workplace environment and interactions with colleagues.
- Examine why women physicists may feel less comfortable raising concerns about their work with their bosses or managers.
- All physicists may feel discouraged from time to time, but women are more likely to be discouraged than men.

Visit <http://www.aip.org/statistics> for past reports or to sign up for updates about the Global Survey of Physicists

Some Participating Organizations

- African Physical Society
- American Physical Society
- American Association of Physics Teachers
- American Astronomical Society
- Australian Institute of Physics
- Brazilian Physical Society
- Canadian Association of Physicists
- Chinese Physical Society
- Croatian Physical Society
- Cuban Academy of Sciences
- Cuban Society of Physics
- German Physical Society
- French Physical Society
- Japan Society of Applied Physics
- Latvian Physical Society
- Mexican Physical Society
- National Society of Black Physicists (USA)
- National Society of Hispanic Physicists (USA)
- Physical Society of Japan
- Polish Physical Society Women Section
- Spanish National Research Council
- Spanish Physical Society

Thank you

Antoneta Deda	Albania	Ling-An Wu	China
A. Guehria laidoudi	Algeria	Doris Girata	Colombia
S. Ponce Dawson	Argentina	Bojana Hamziæ	Croatia
Mary Zasyan	Armenia	L. M. Alvarez Diaz	Cuba
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Cathy Foley	Australia	Beate Klosgen	Denmark
S. Bühler-Paschen	Austria	Paola Ayala	Ecuador
S. Choudhury	Bangladesh	Karimat El-Sayed	Egypt
Marcia Barbosa	Brazil	Jose Elias	El Salvador
Ana Proykova	Bulgaria		
Petronille Kafando	Burkina Faso		
Marthe Boyomo	Cameroon		
A. Predoi-Cross	Canada		

Thank you

Anne Pepin	France	Paul Baki	Kenya
Catherine Thibault	France	Erna Karule-Gailite	Latvia
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Carola Meyer	Germany	Dalia Satkovskiene	Lithuania
Christine Meyer	Germany	Nejia Essayed	Libya
Ilona Westram	Germany	Lilia Meza-Montes	Mexico
Aba Bentil Andam	Ghana	Amalia Martinez	Mexico
Anita Mehta	India	Amina Bettachi	Morocco
Dina Izadi	Iran		
Síle Nic Chormaic	Ireland		
Patrizia Cenci	Italy		
Madoka Takai	Japan		
Setsuko Tajima	Japan		

Thank You

Altanzaya Purev	Mongolia	Anca Visinescu	Romania
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D. Soyolmaa	Mongolia	Ndeye Arame Boye Faye	Senegal
B. Enkhsaruul	Mongolia	Agika Kapor	Serbia
Sekai Shambira	Namibia/Zimbabwe	Dragica Knezevic	Serbia
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Fatima Hasnain	Pakistan		
M. L. Ceron Loayza	Peru		
C. Villagonzalo	Philippines		
Elzbieta Czerwosz	Poland		

Thank you

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Tahani Shatir	Sudan	Raymond Chu	US
Ray Nien Kwo	Taiwan	Yevgeniya Zastavker	US
N. Mohammed	Tanzania	Ulmas Gafurov	Uzbekistan
Kandice Tanner	Tobago-Trinidad	Sakina Fakhraddin	Yemen
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Gillian Butcher	UK		
Oksana Patsahan	Ukraine		

Please advise of any
corrections

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