

Supplementary appendix

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Supplementary Materials for "Dietary quality among men and women in 187 countries in 1990 and 2010"

Fumiaki Imamura, Shahab Khatibzadeh, Renata Micha, Saman Fahimi, Peilin Shi, John Powles, Dariush Mozaffarian, on behalf of the Global Burden of Diseases Nutrition and Chronic Diseases Expert Group (NutriCoDE)

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Whole grain consumption among men

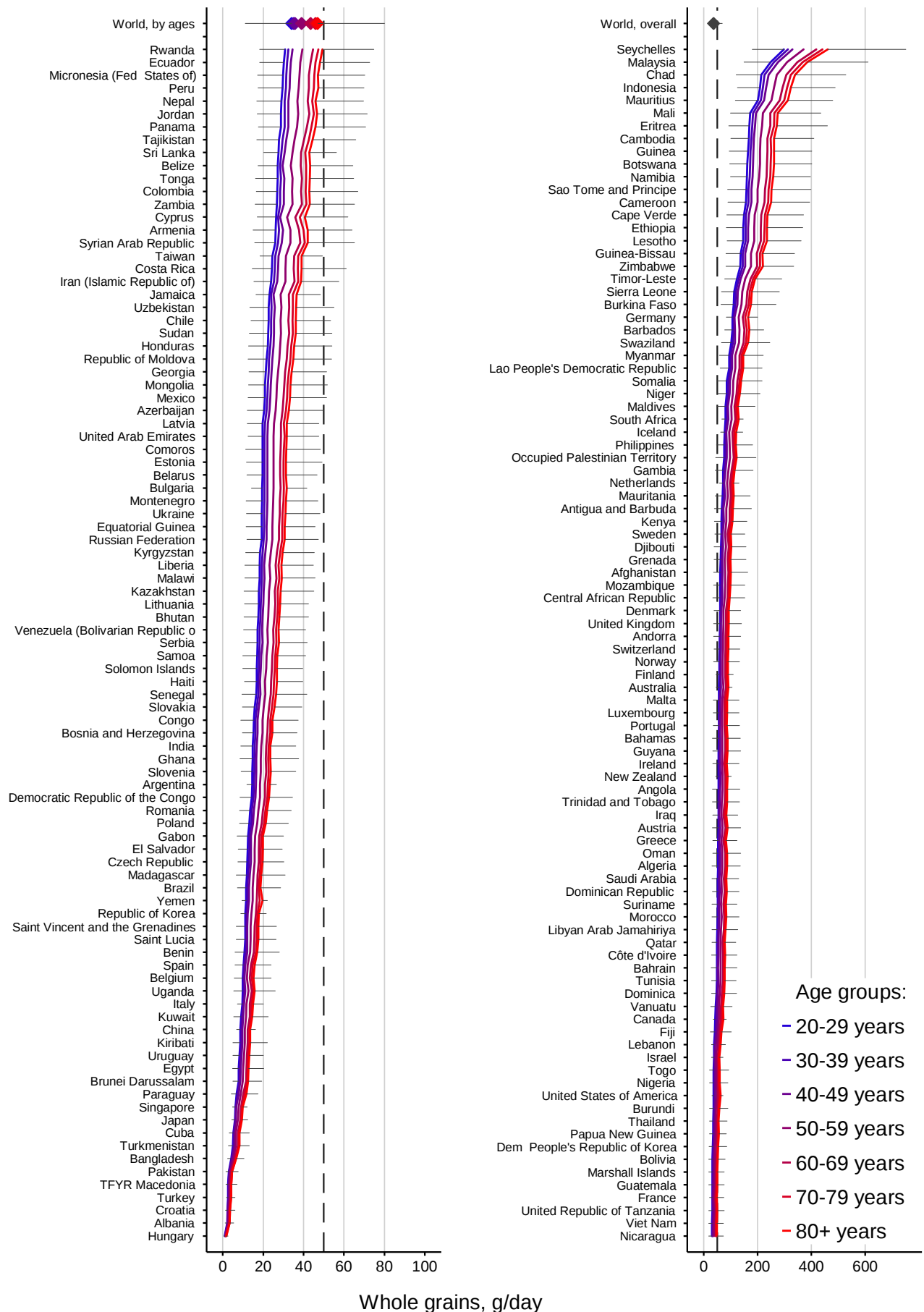
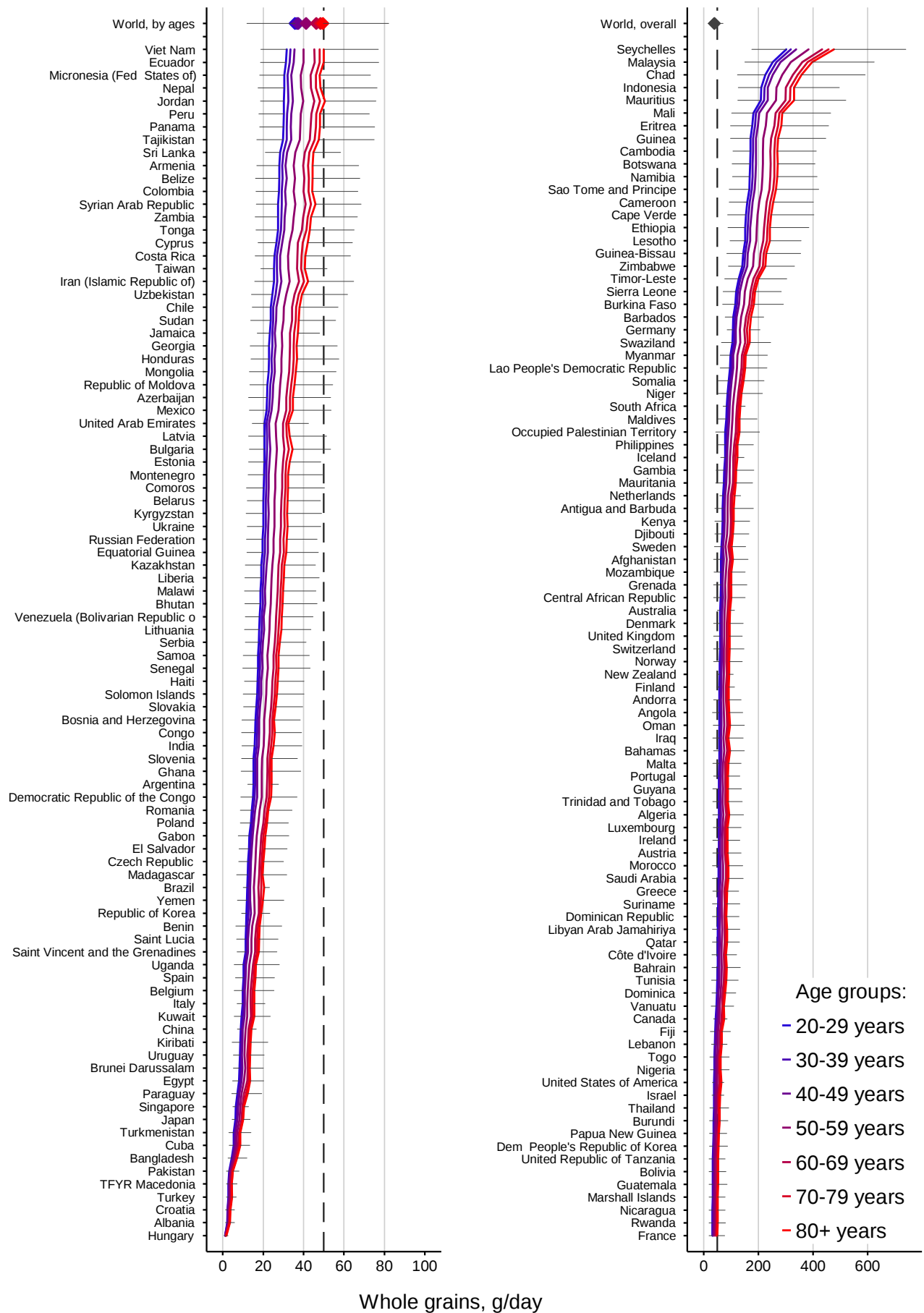


Figure S1. Whole grain consumption among men and women aged 20 years or older in 187 countries. Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for whole grain consumption.

Whole grain consumption among women



Fruit consumption among men

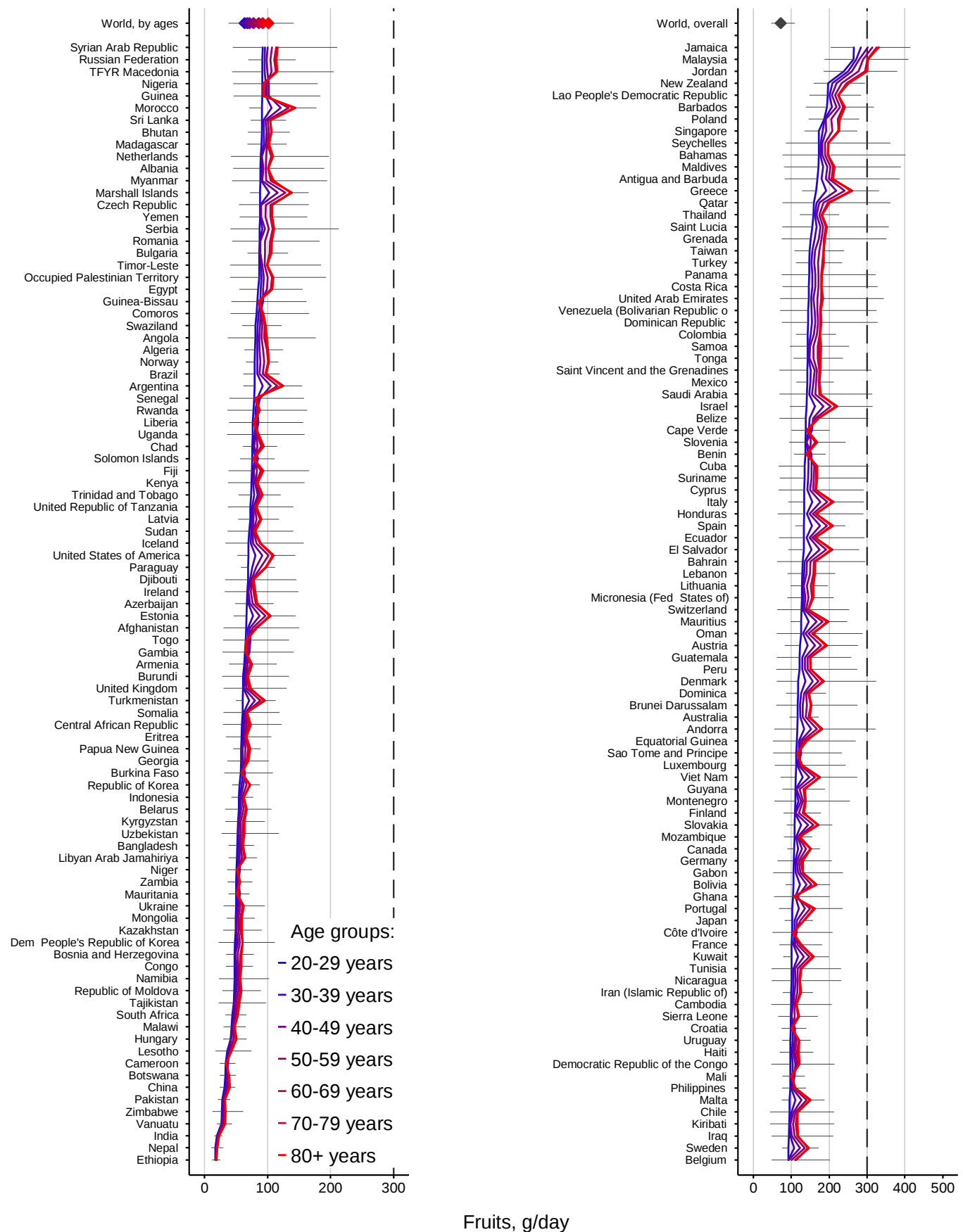
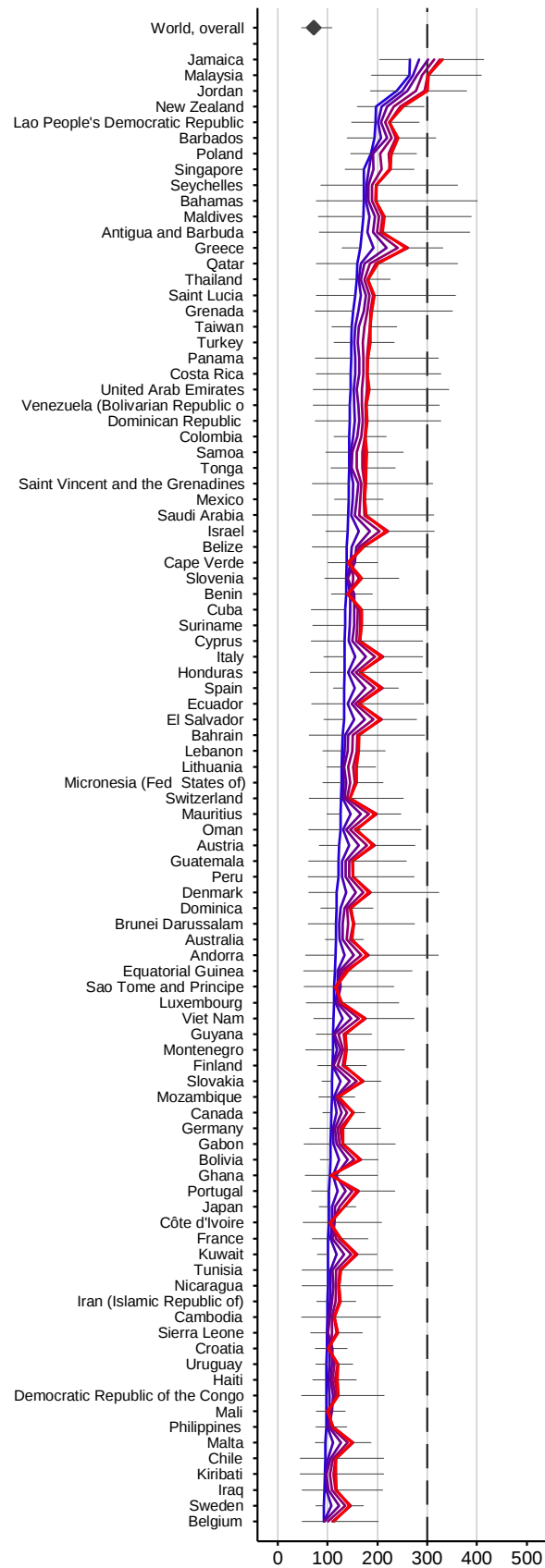
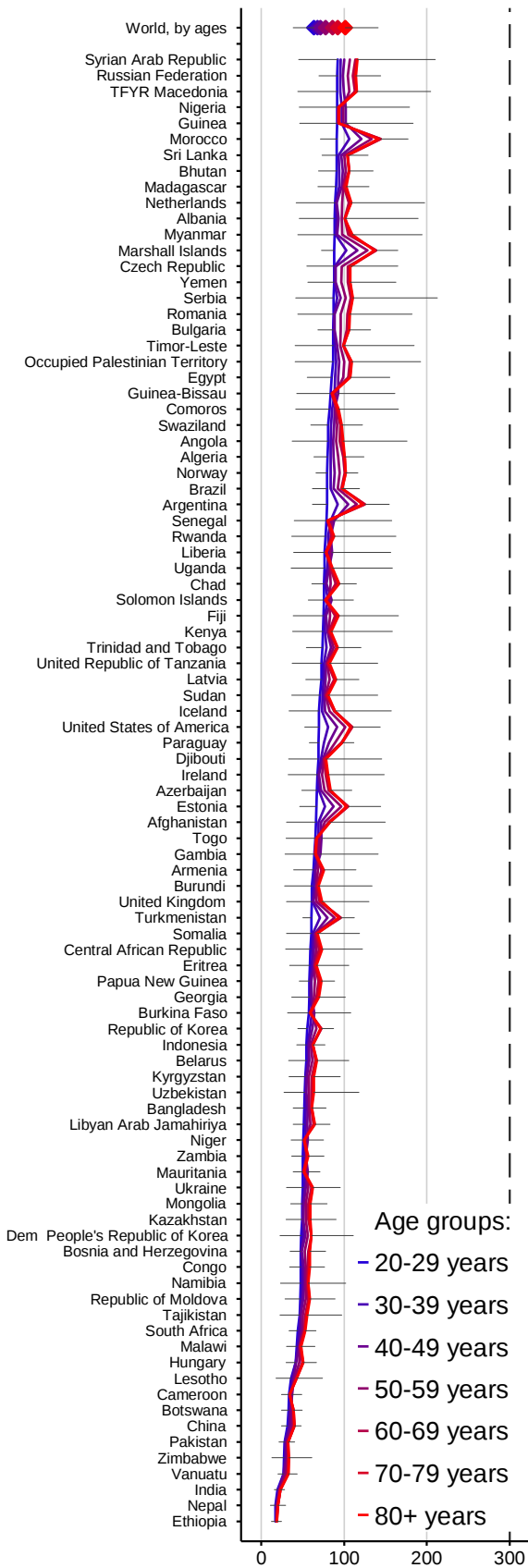


Figure S2. Fruit consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for fruit consumption.

Fruit consumption among women



Fruits, g/day

Fruit juice consumption among men

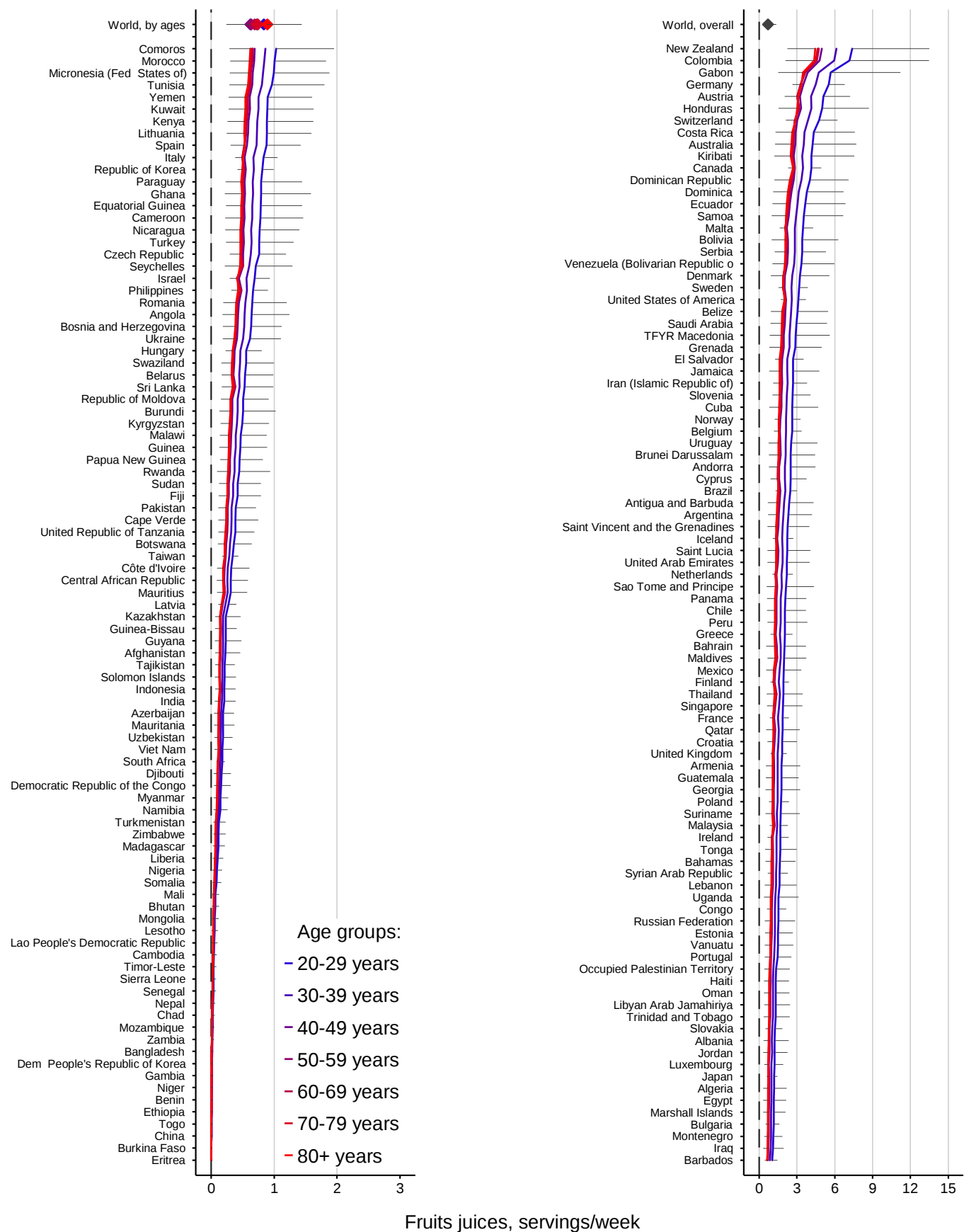
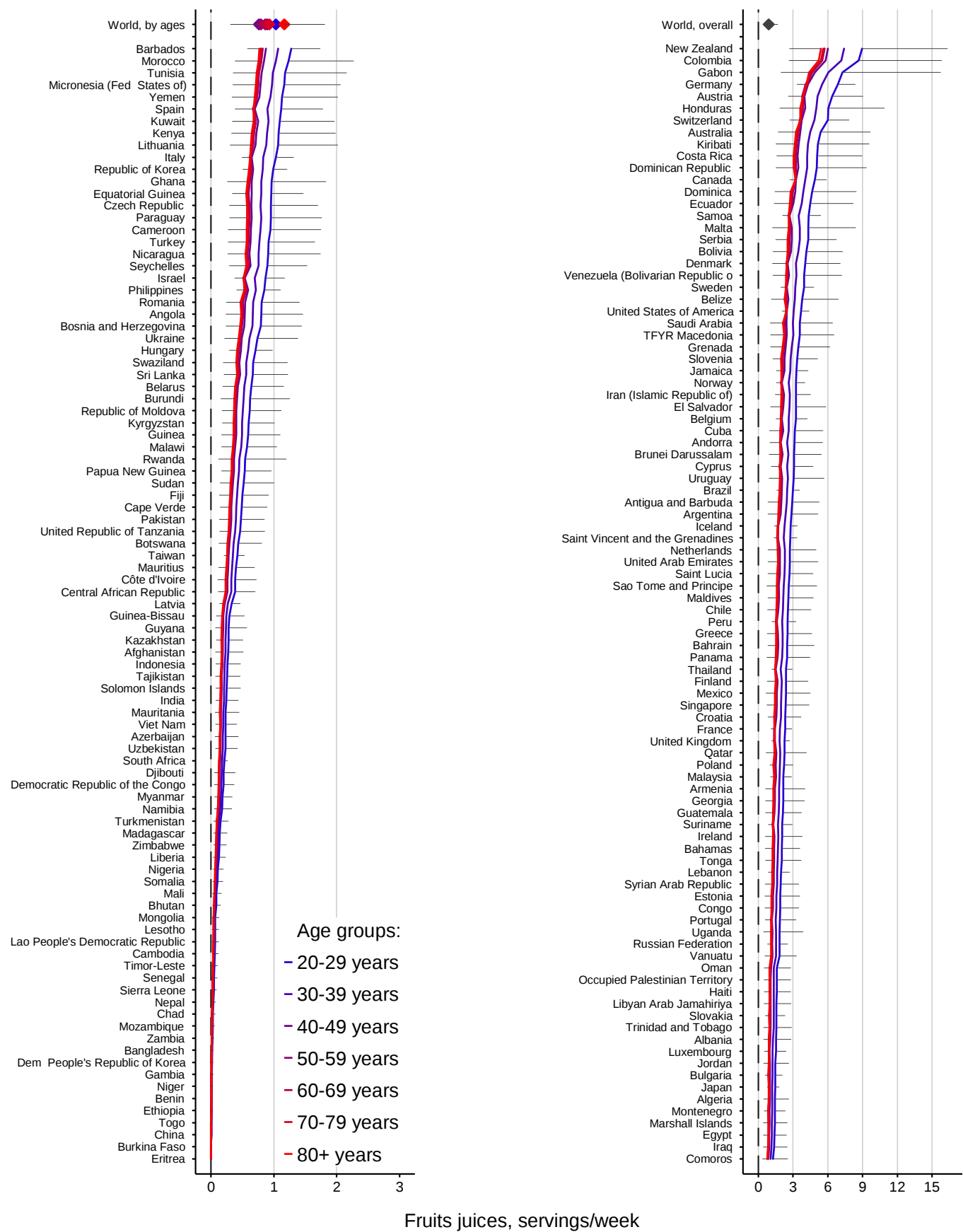


Figure S3. Fruit juice consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for fruit juice consumption.

Fruit juice consumption among women



Vegetable consumption among men

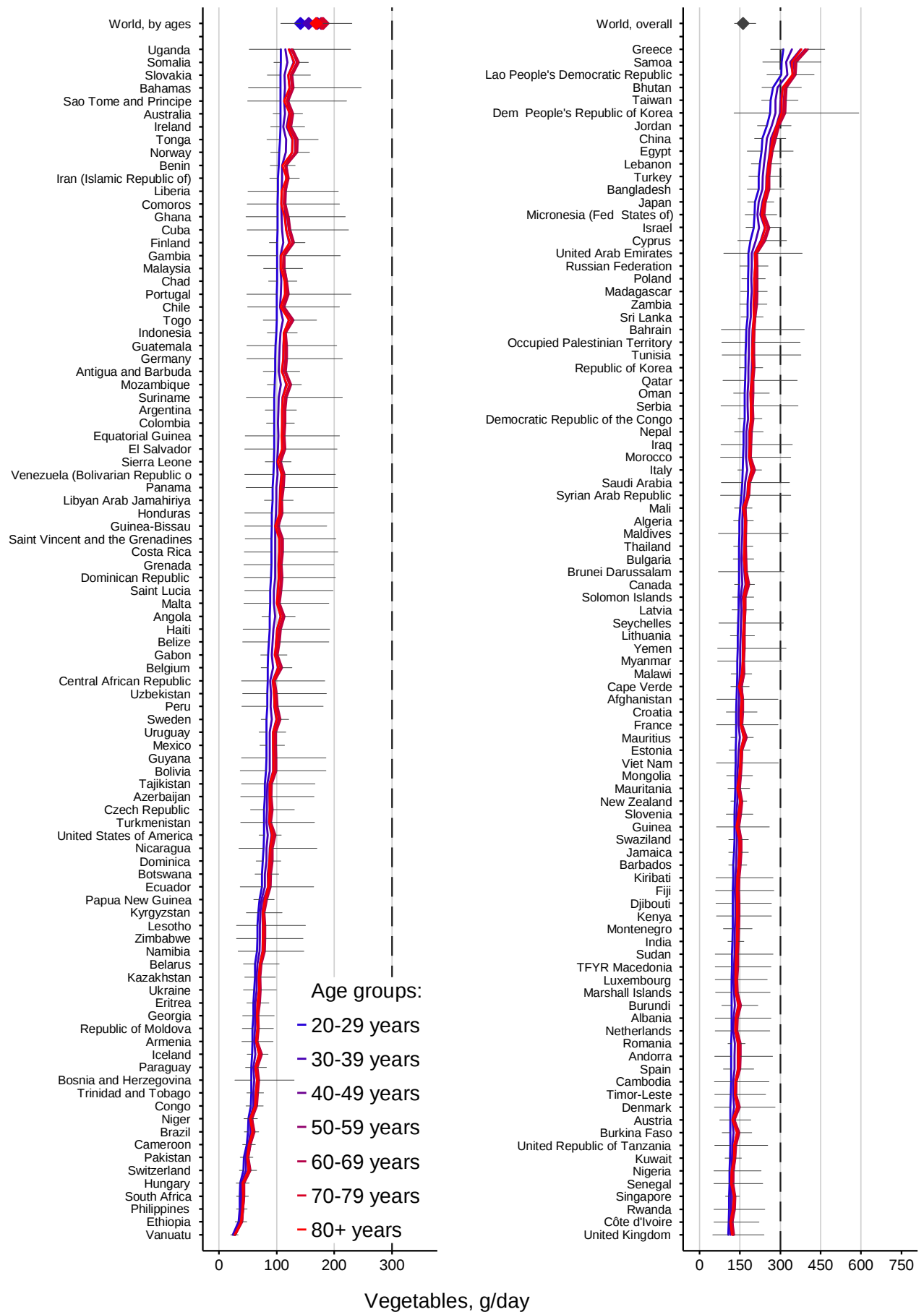
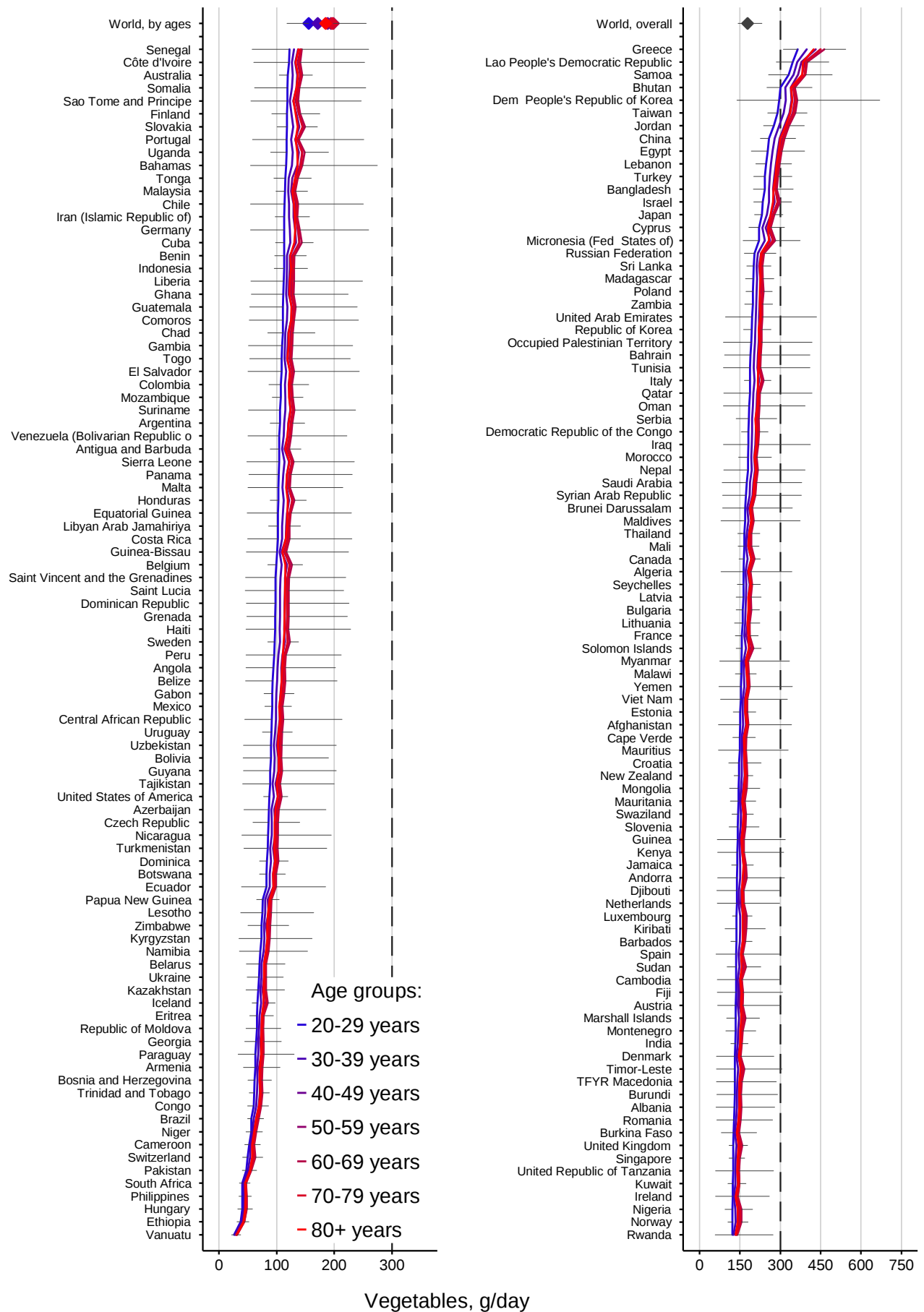


Figure S4. Vegetable consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for vegetable consumption.

Vegetable consumption among women



Fish consumption among men

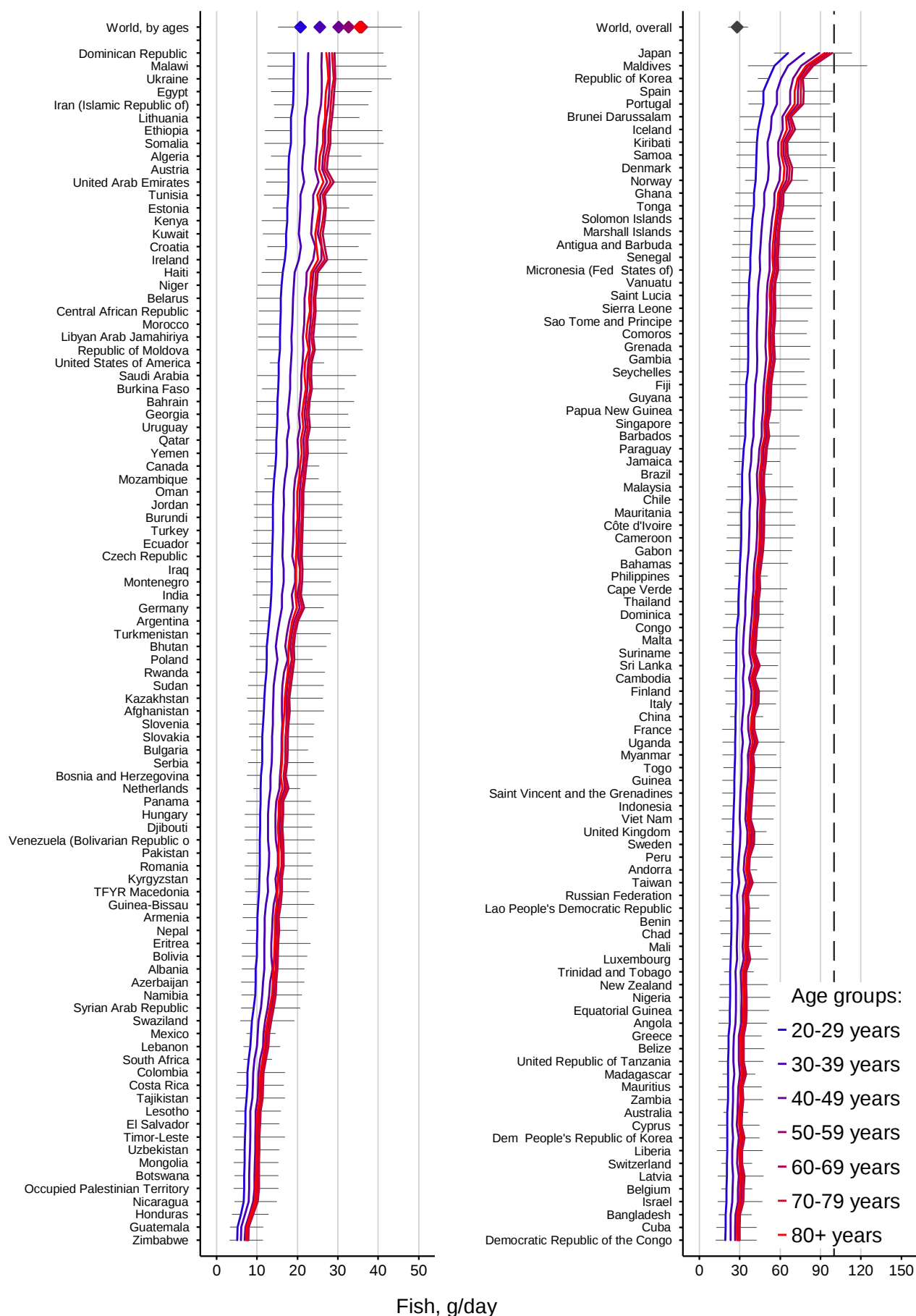
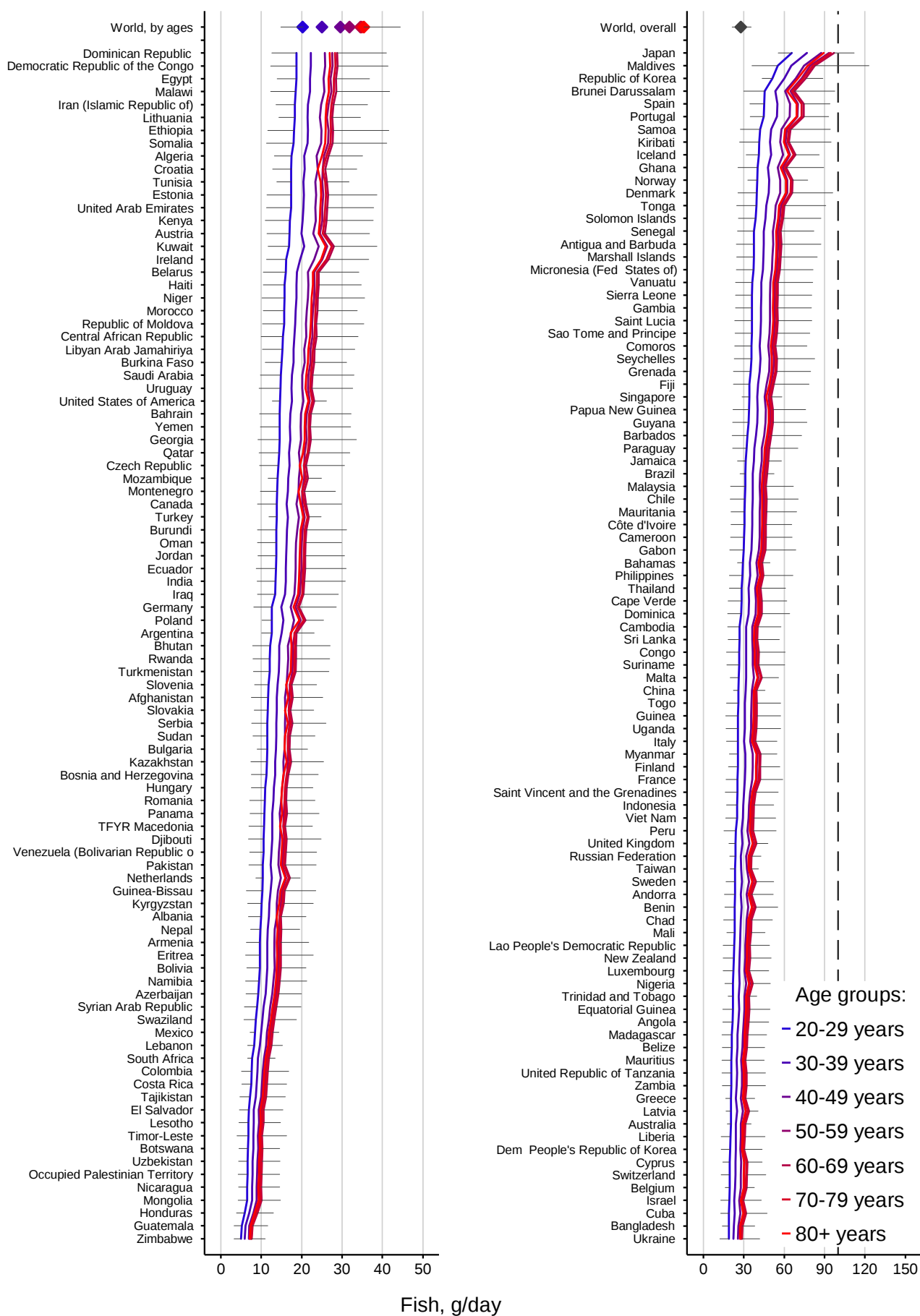


Figure S5. Fish consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for fish consumption.



Consumption of nuts and seeds among men

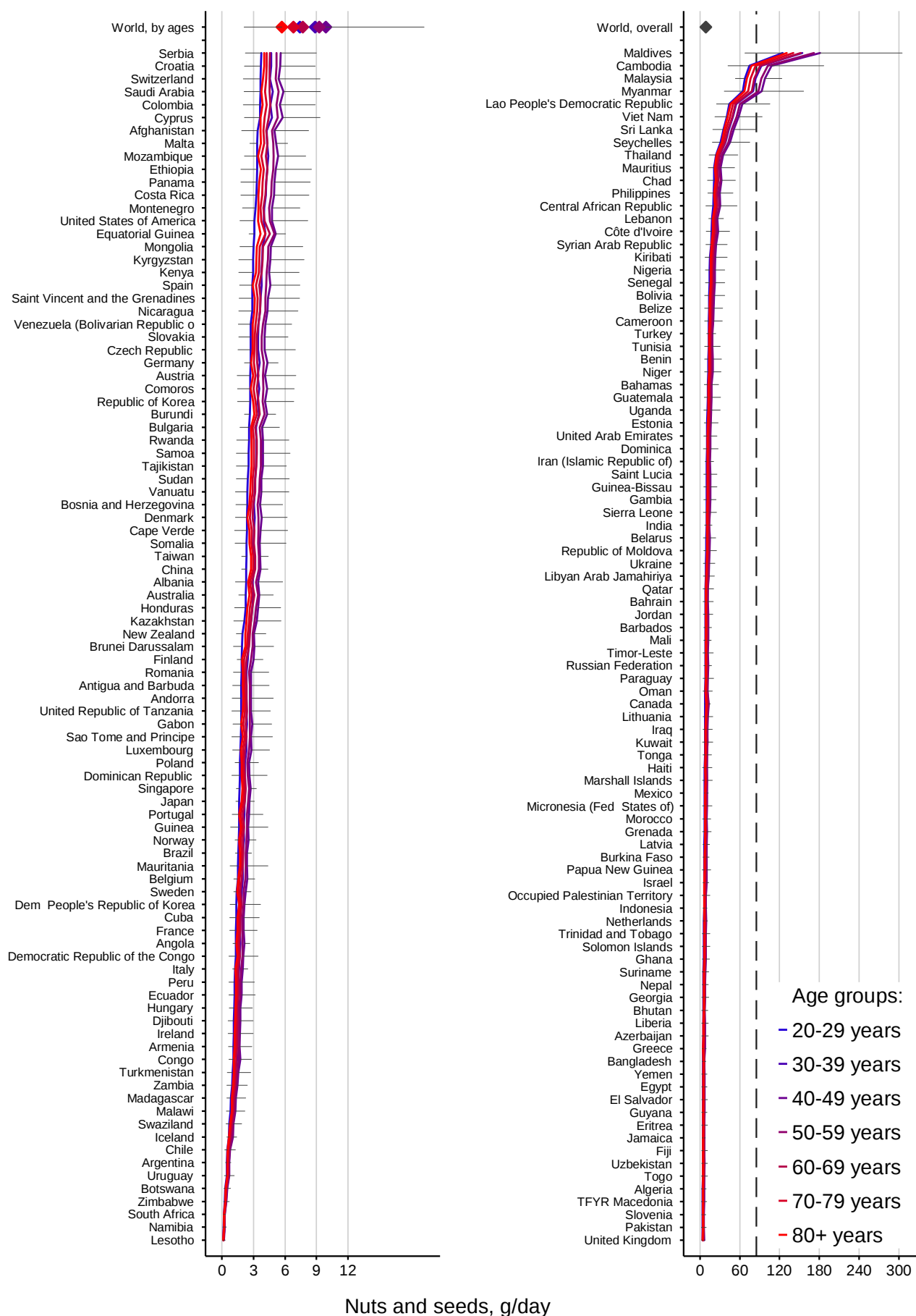
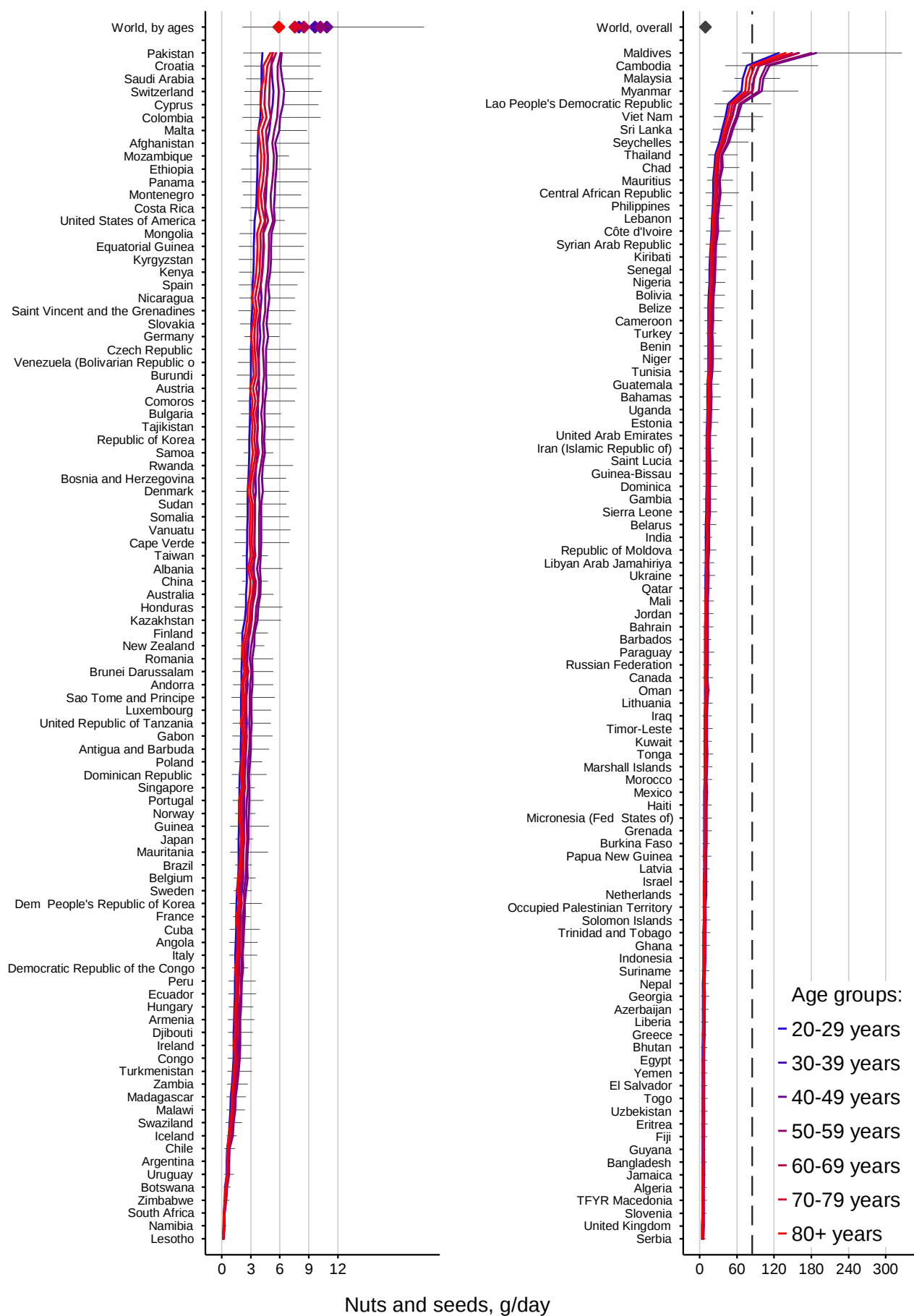


Figure S6. Consumption of nuts and seeds among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for consumption of nuts and seeds.

Consumption of nuts and seeds among women



Consumption of beans and legumes among men

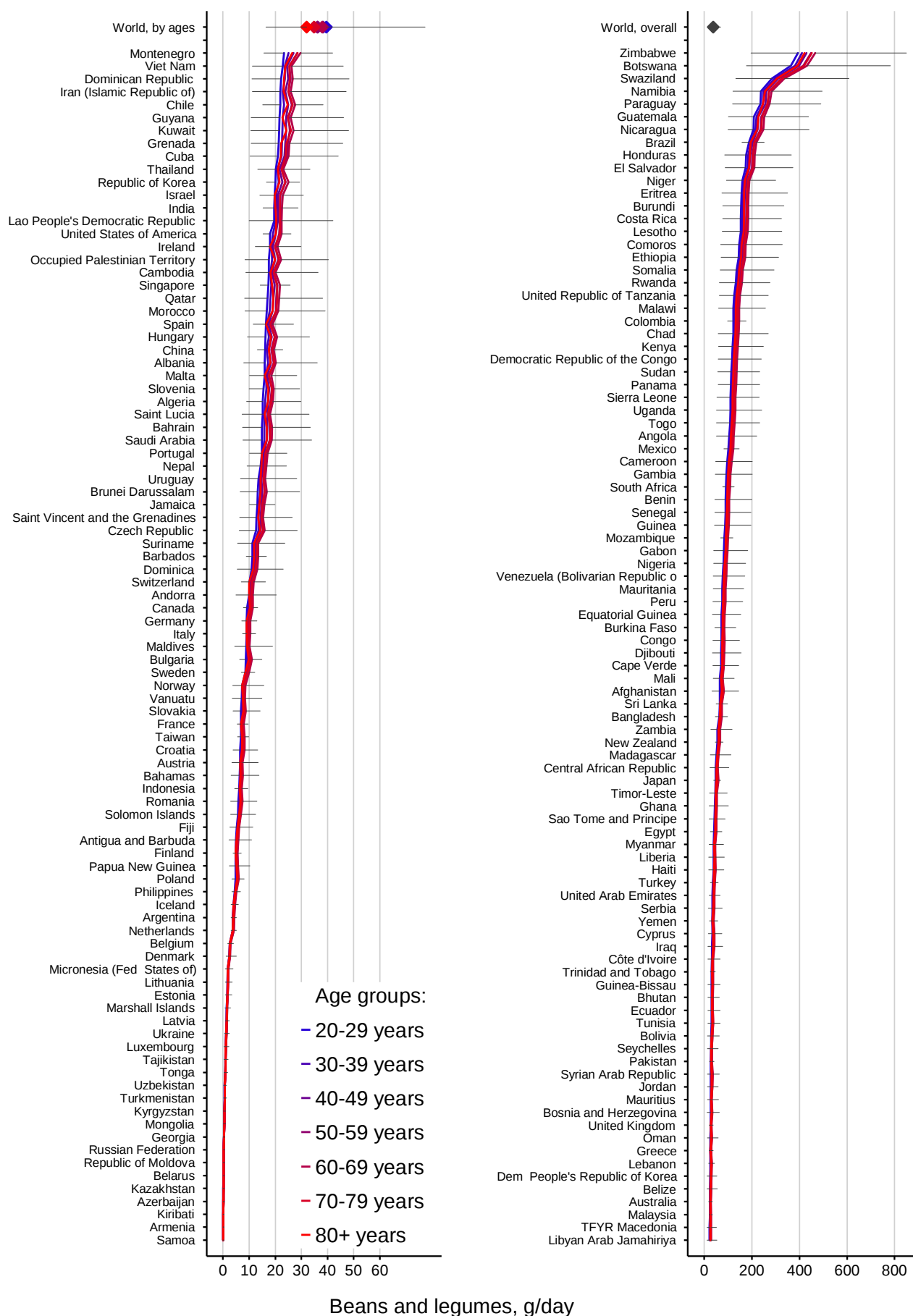
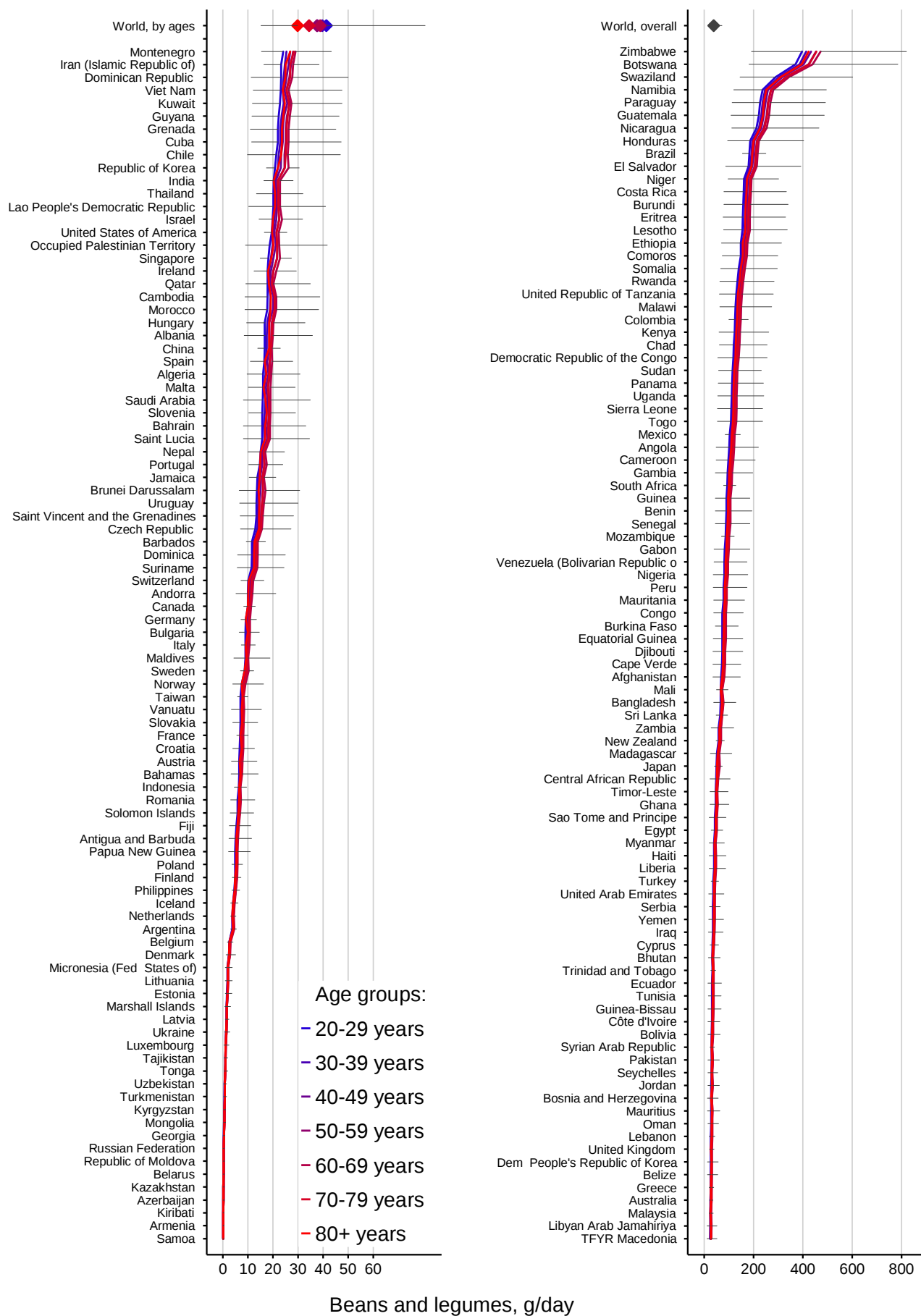


Figure S7. Consumption of beans and legumes among men and women aged 20 years or older in 187 countries. Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate in each country. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for consumption of beans and legumes.

Consumption of beans and legumes among women



Milk consumption among men

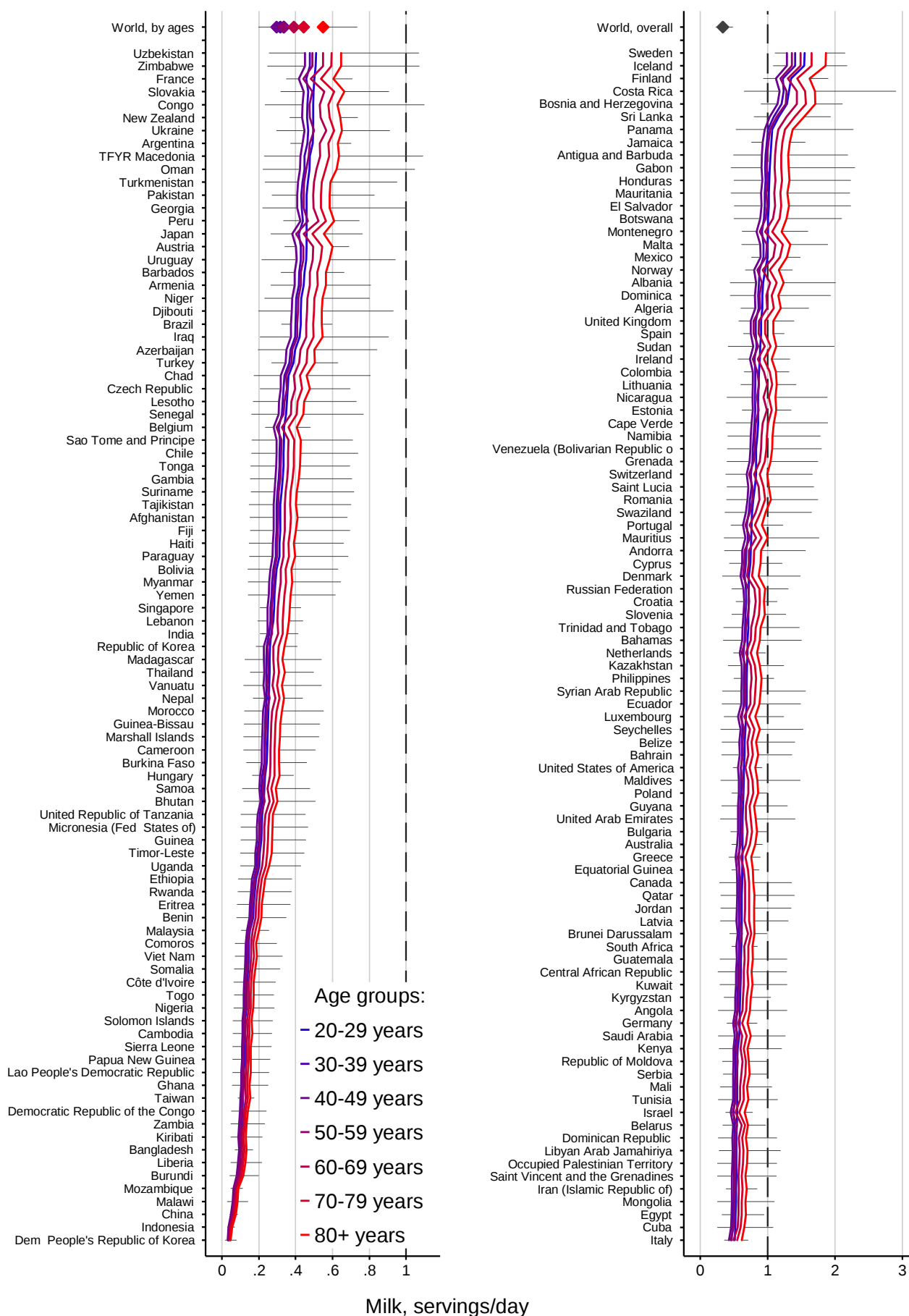
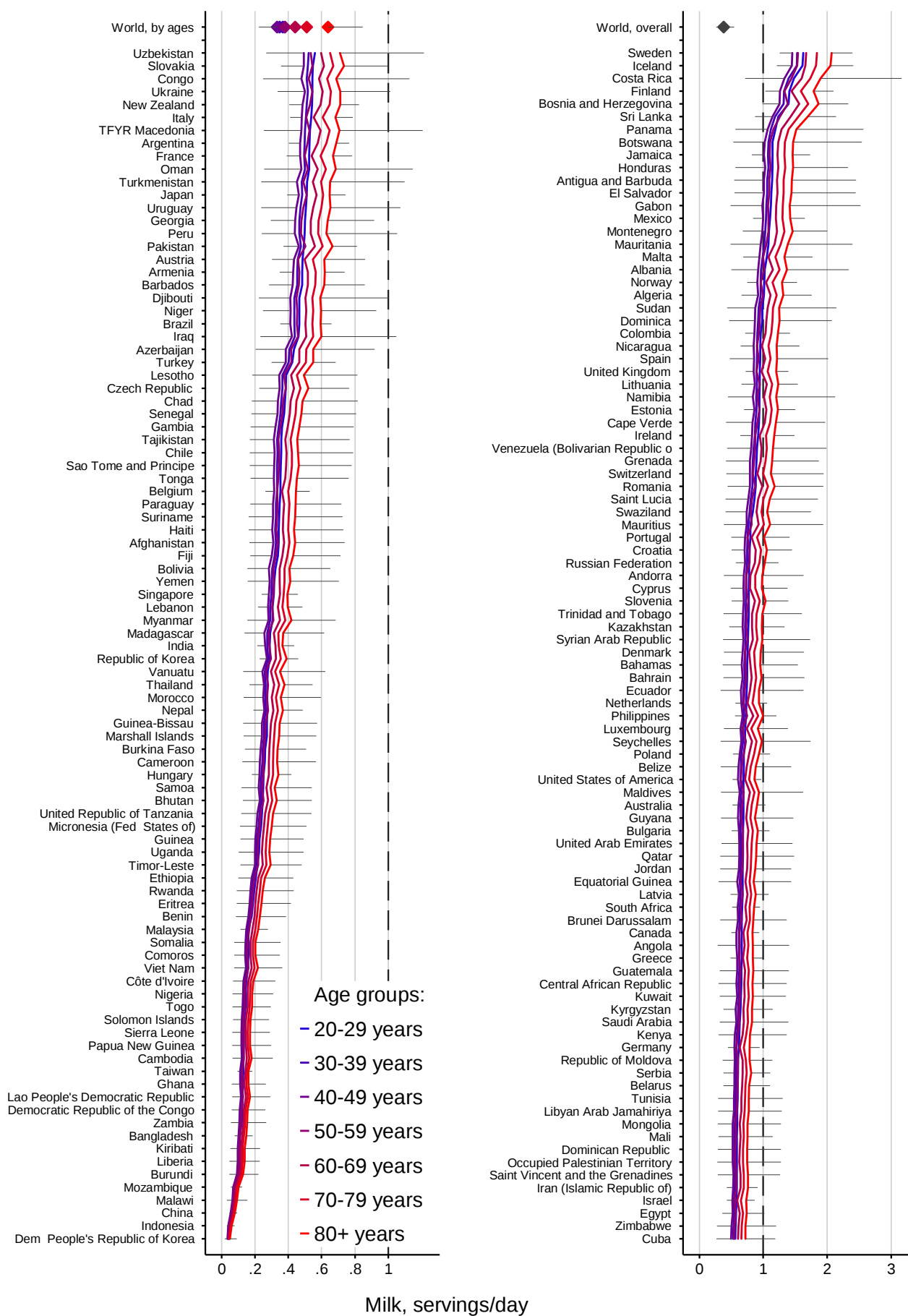


Figure S8. Milk consumption among men and women aged 20 years or older in 187 countries. The unit is 1 serving (=8 oz or 226.8 ml) per day. Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for milk consumption.

Milk consumption among women



Dietary Fibre consumption among men

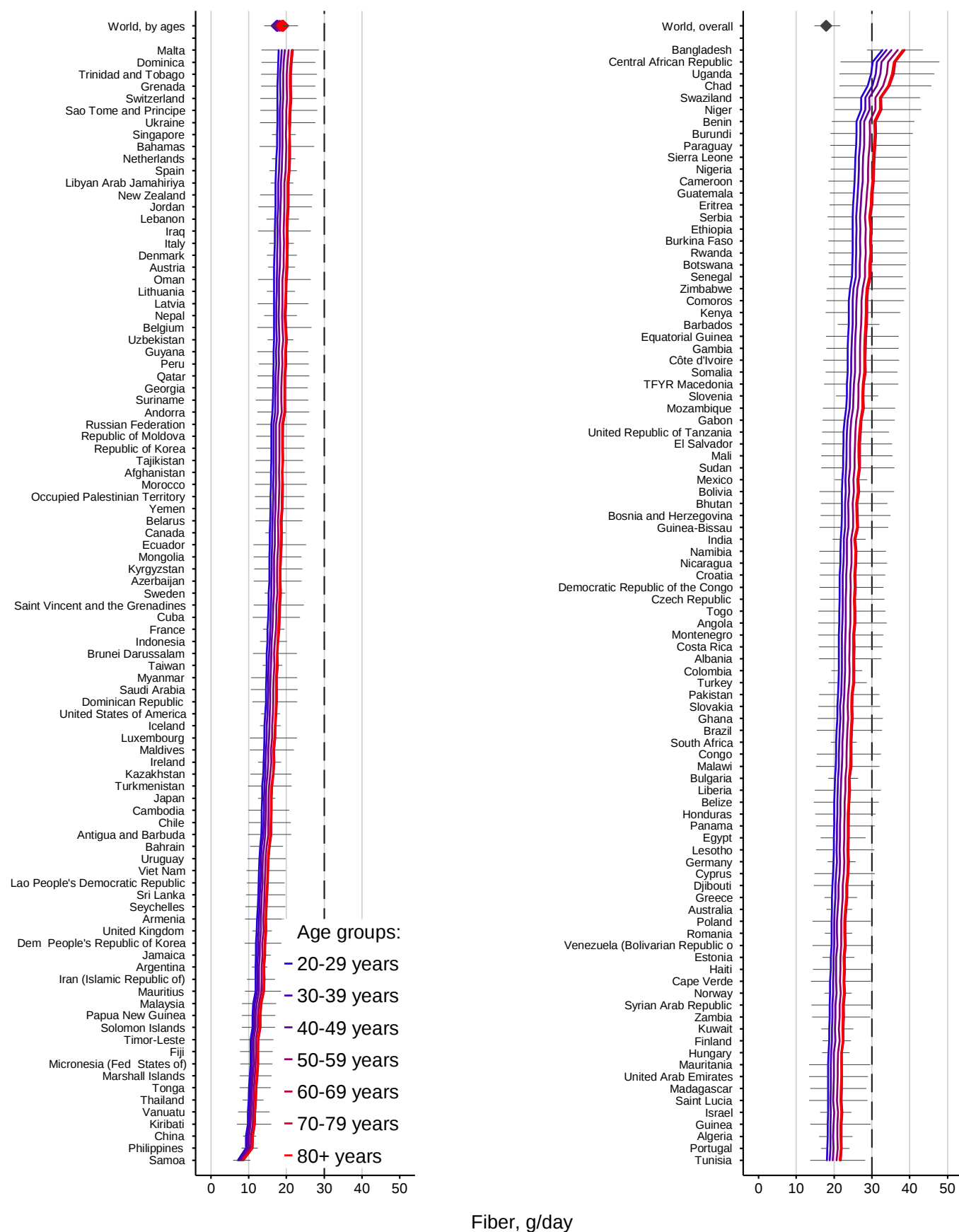
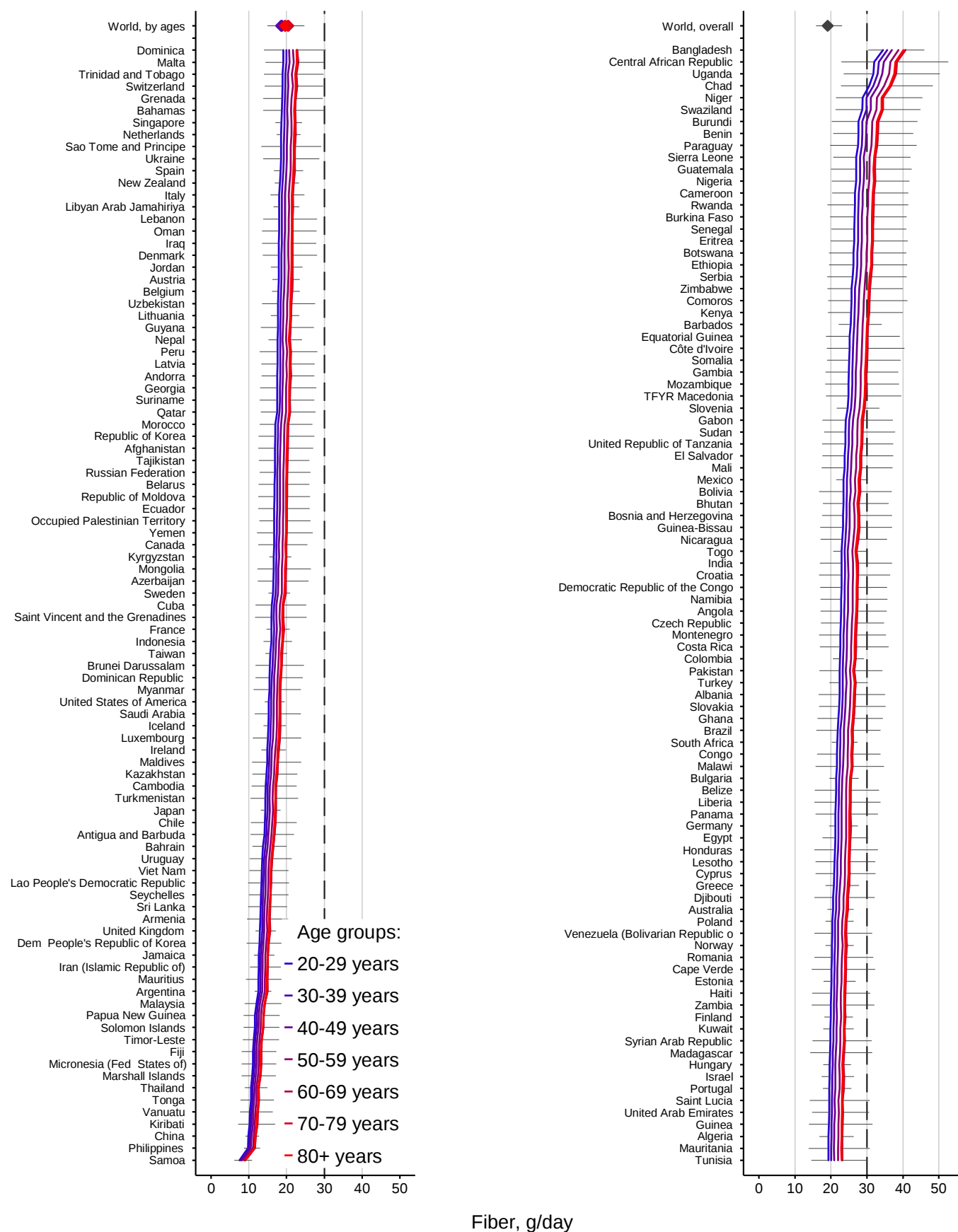


Figure S9. Dietary fibre consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for dietary fibre consumption.

Dietary fibre consumption among women



Polyunsaturated fat consumption among men

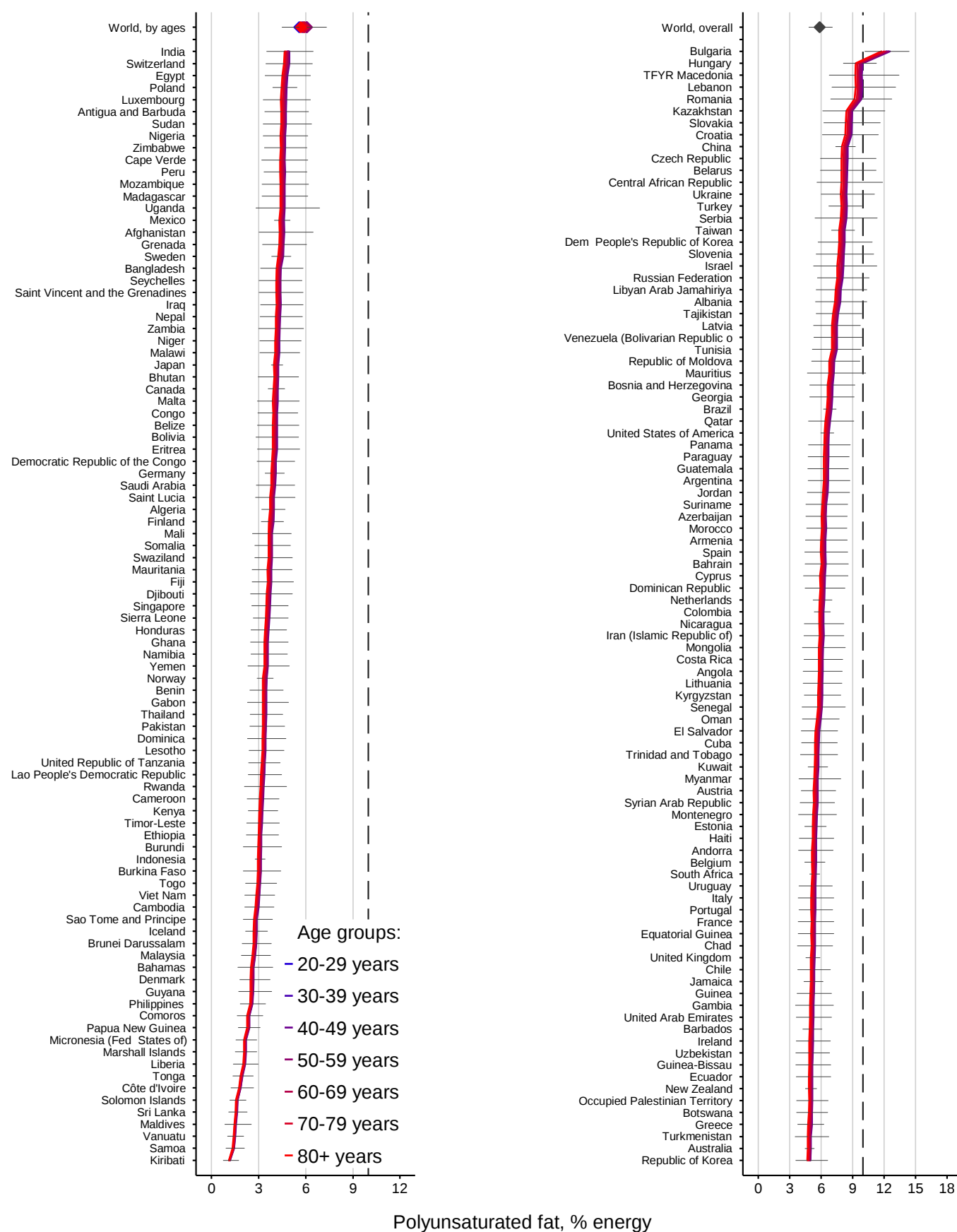
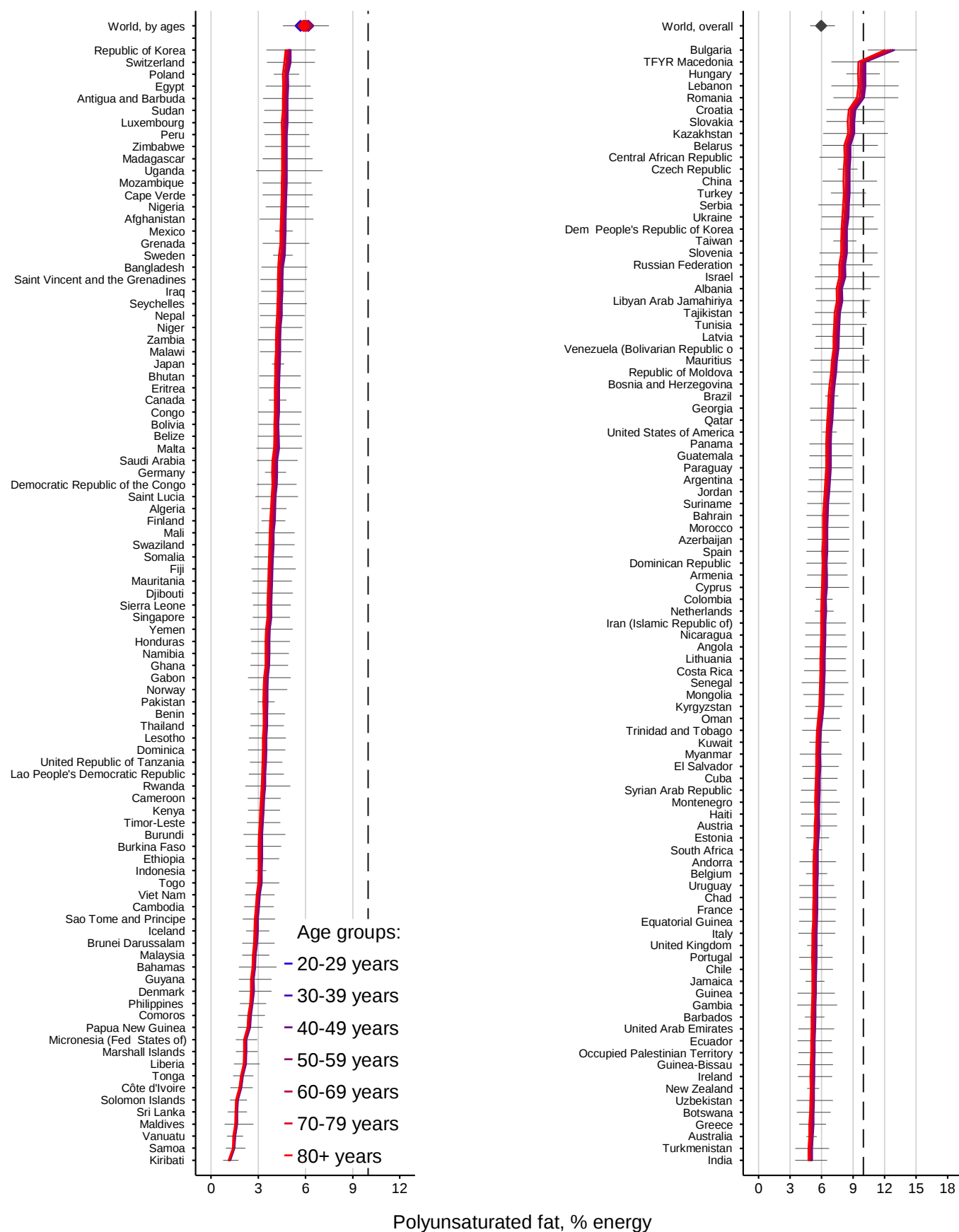


Figure S10. Polyunsaturated fat consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for polyunsaturated fat consumption.

Polyunsaturated fat consumption among women



Consumption of seafood omega-3 fatty acids among men

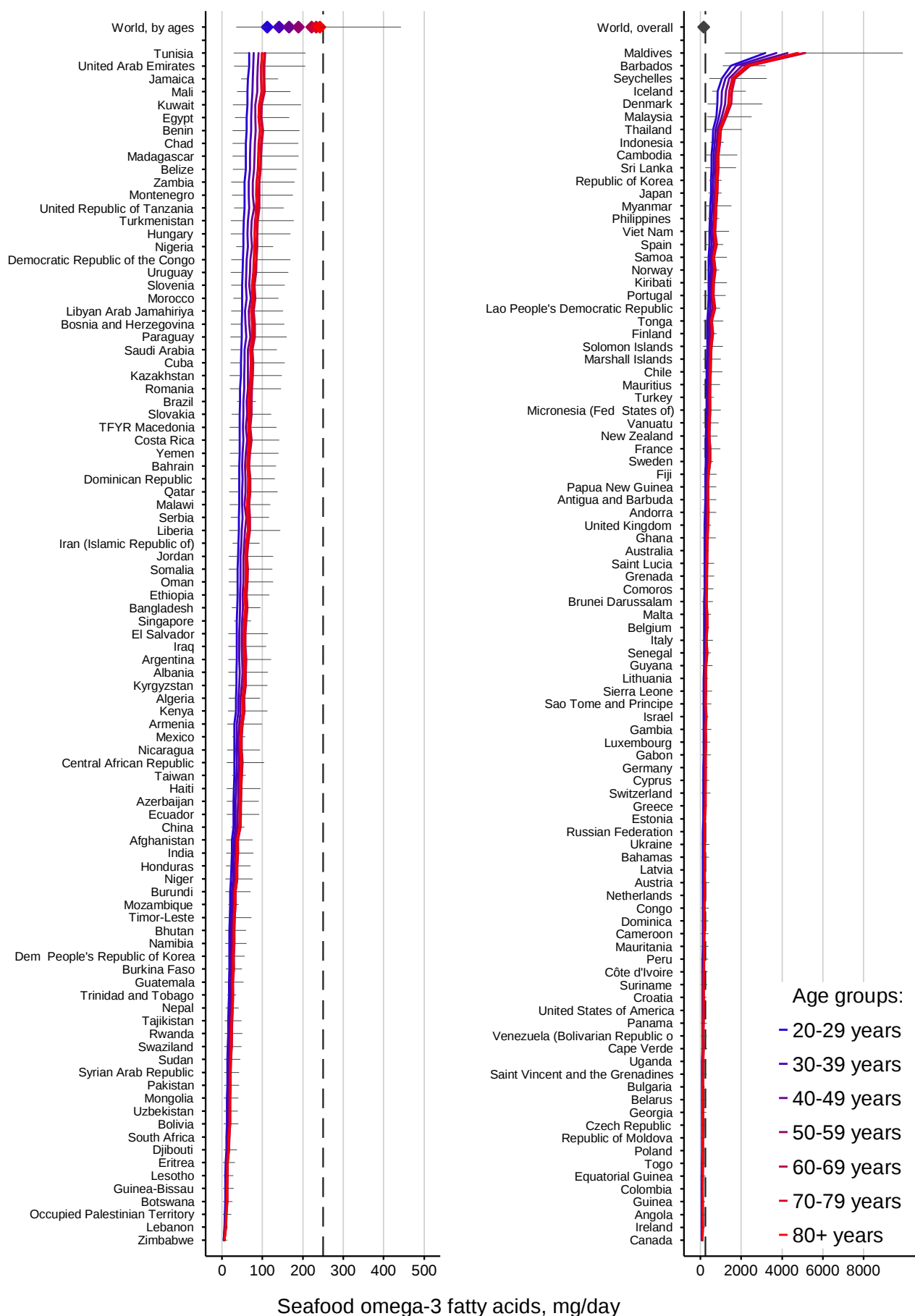
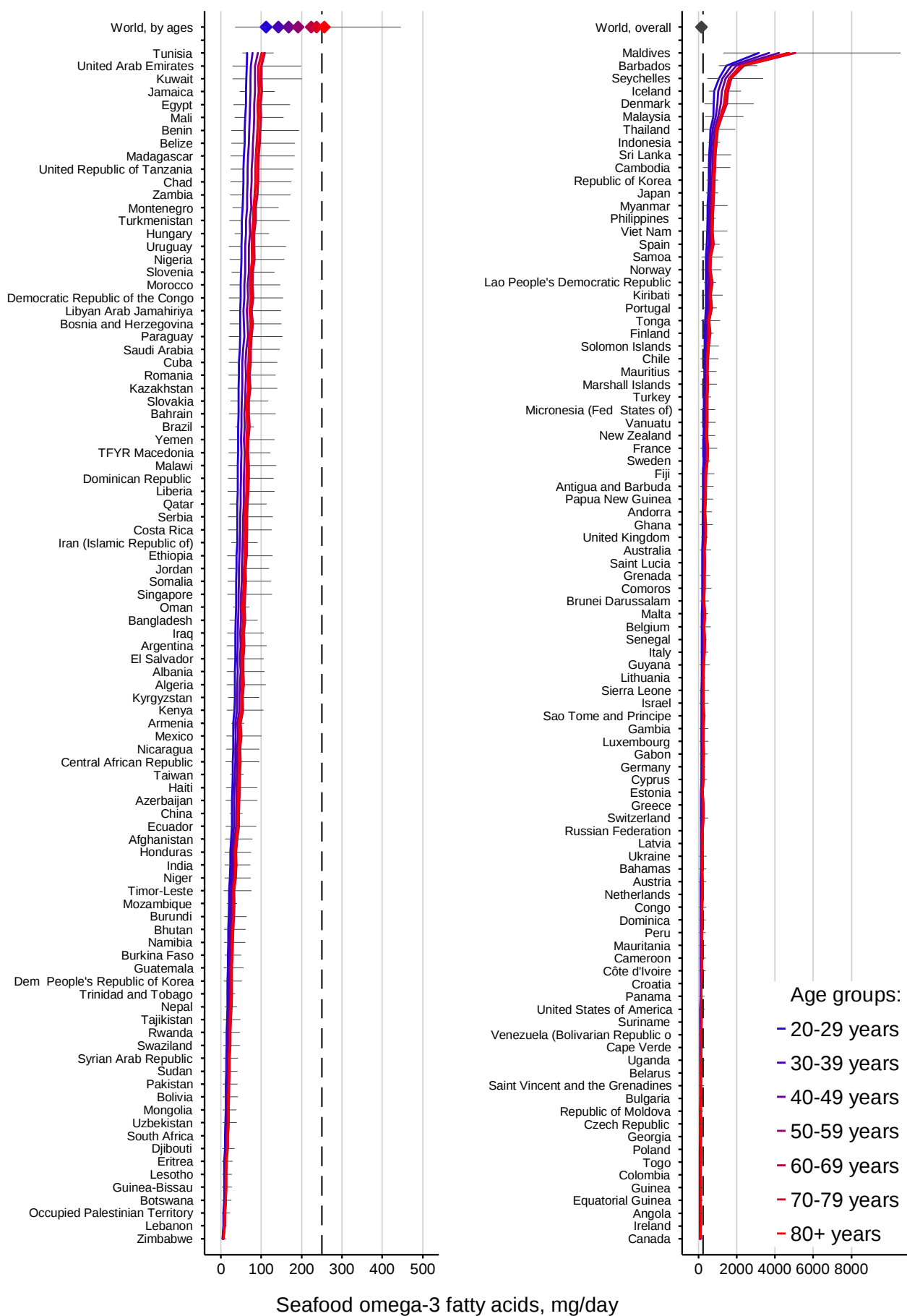


Figure S11. Consumption of seafood omega-3 fatty acids among men and women aged 20 years or older in 187 countries. Countries are ordered by levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate in each country. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for consumption of seafood omega-3 fatty acids.

Consumption of seafood omega-3 fatty acids among women



Consumption of plant omega-3 fatty acids among men

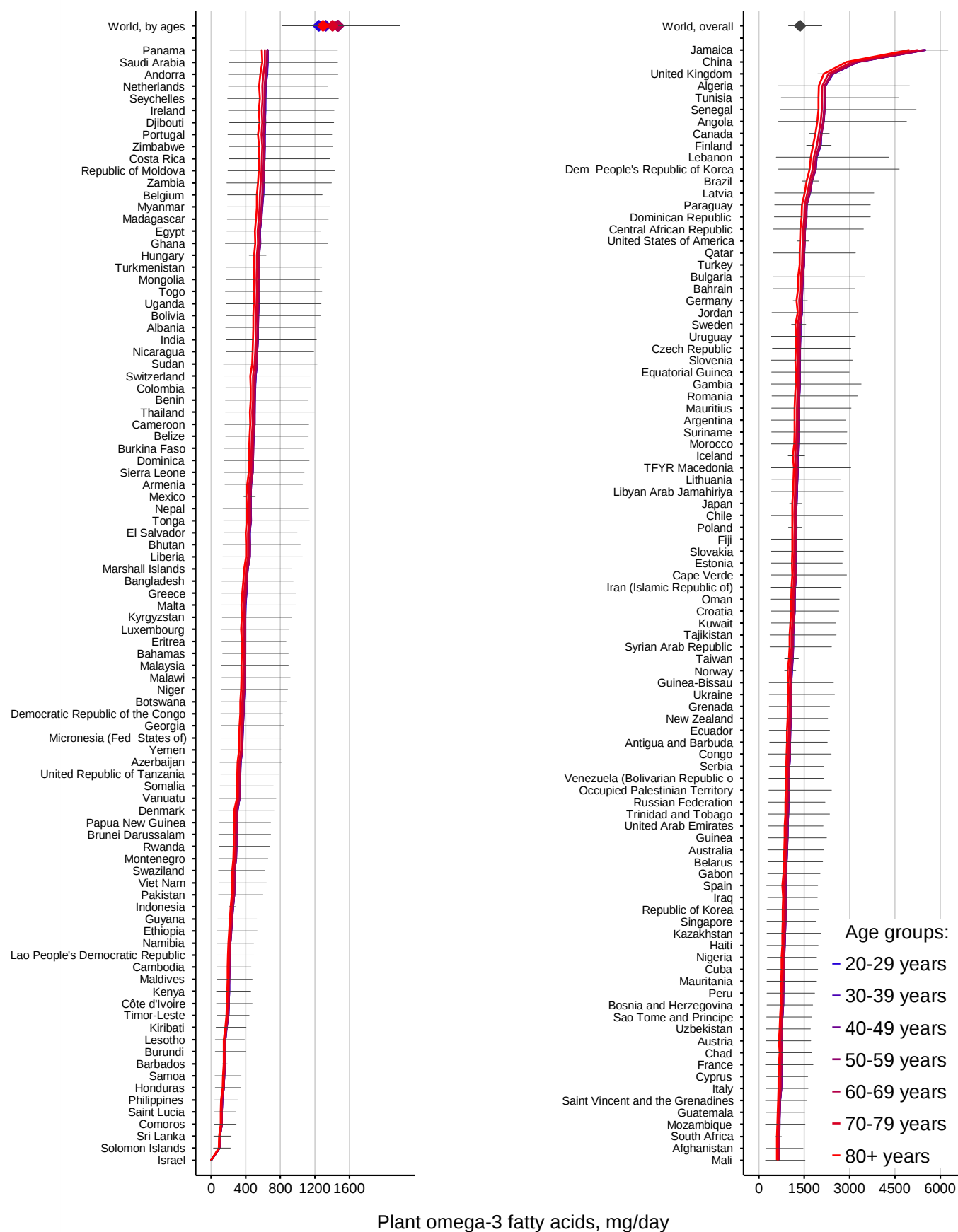
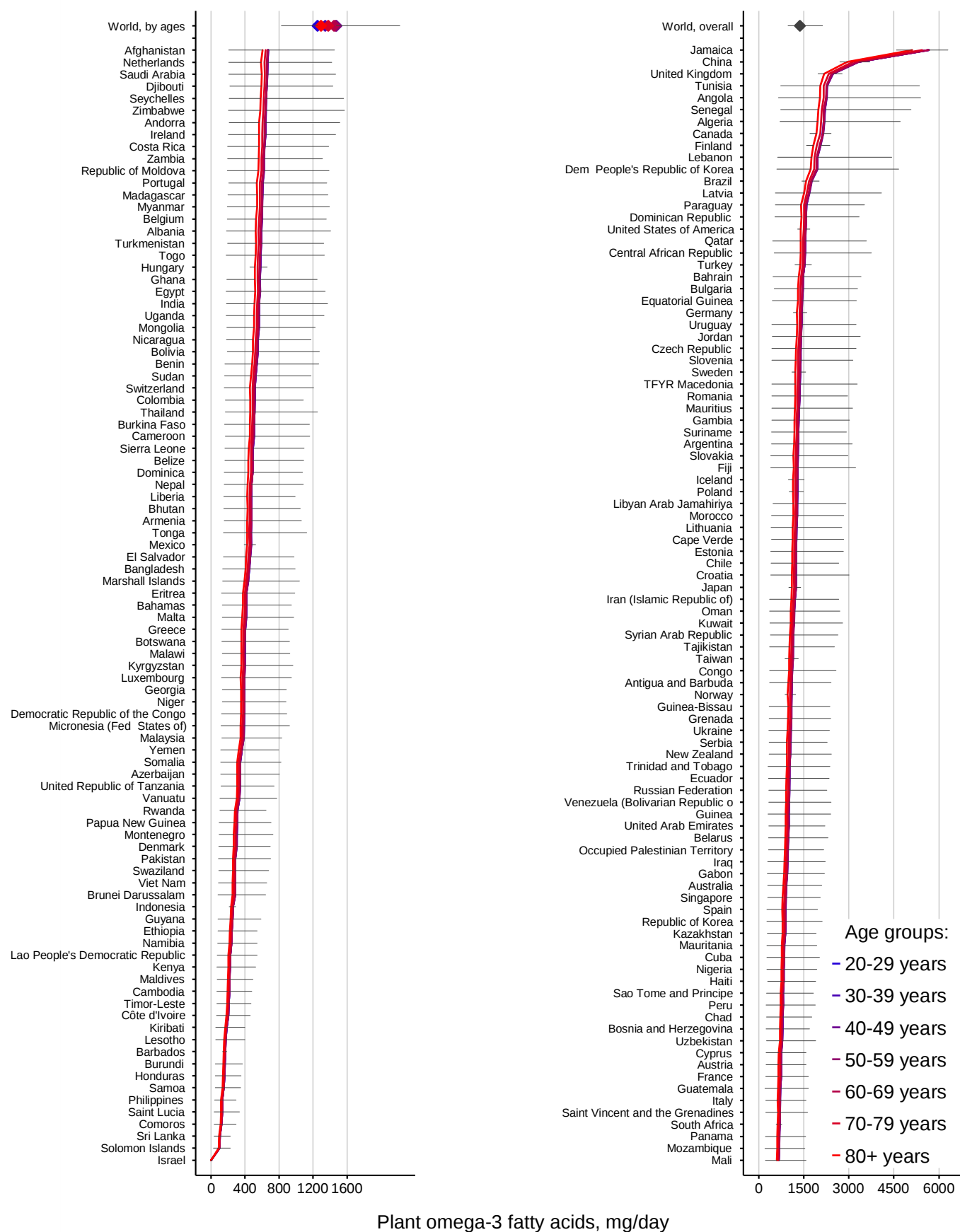


Figure S12. Consumption of plant omega-3 fatty acids among men and women aged 20 years or older in 187 countries. Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for consumption of plant omega-3 fatty acids.

Consumption of plant omega-3 fatty acids among women



Calcium consumption among men

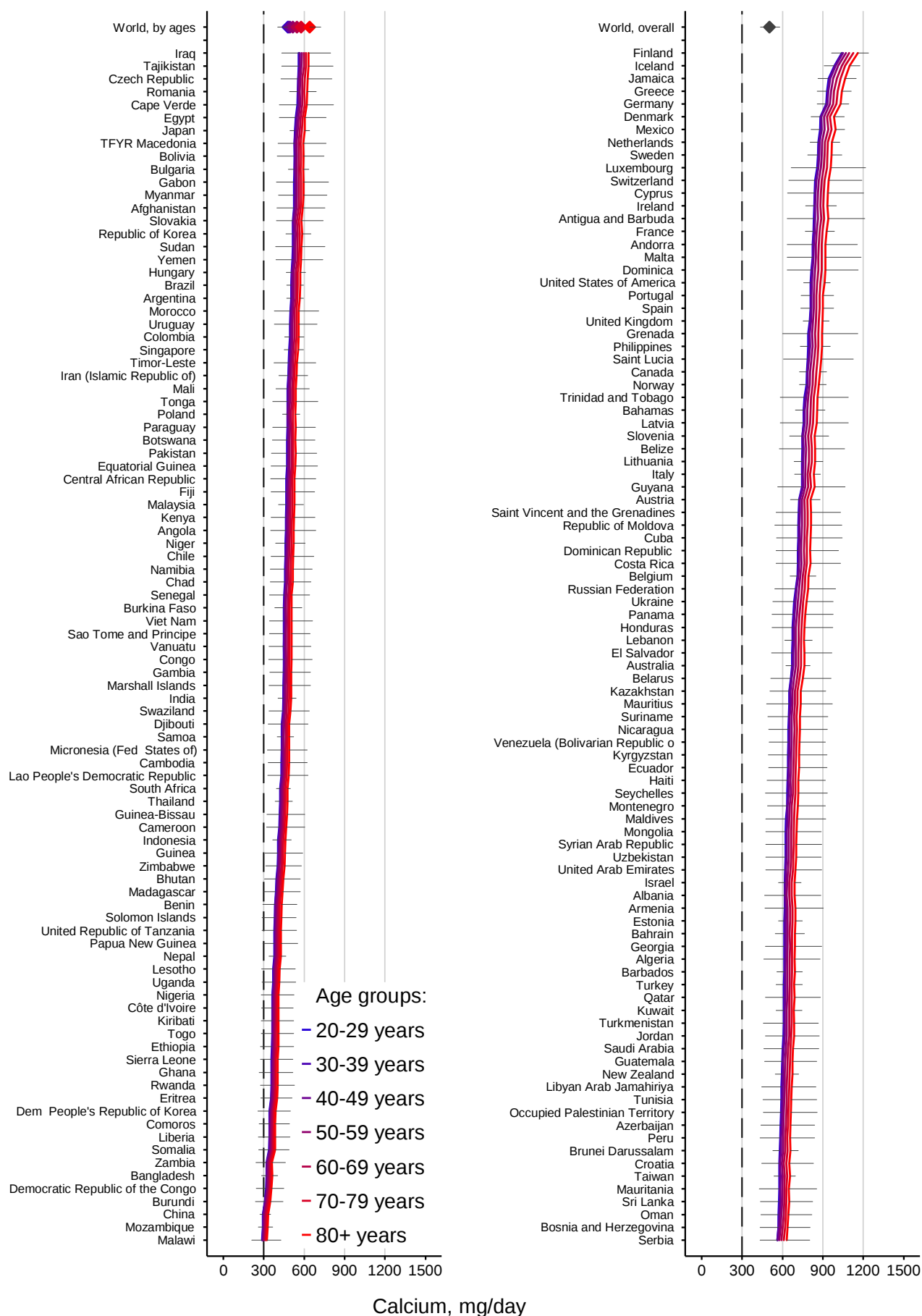
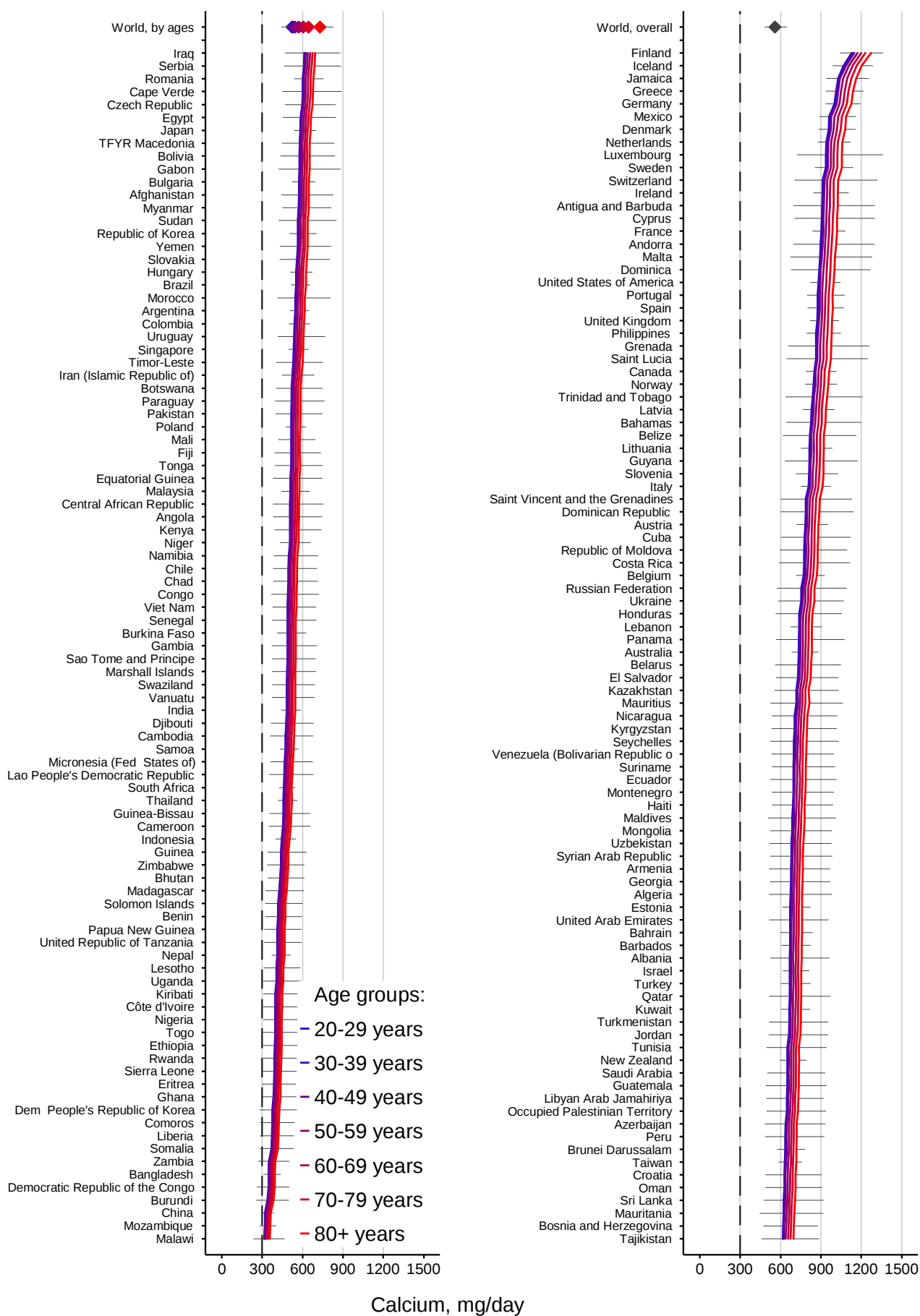


Figure S13. Calcium consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for calcium consumption.

Calcium consumption among women



Sugar sweetened beverage consumption among men

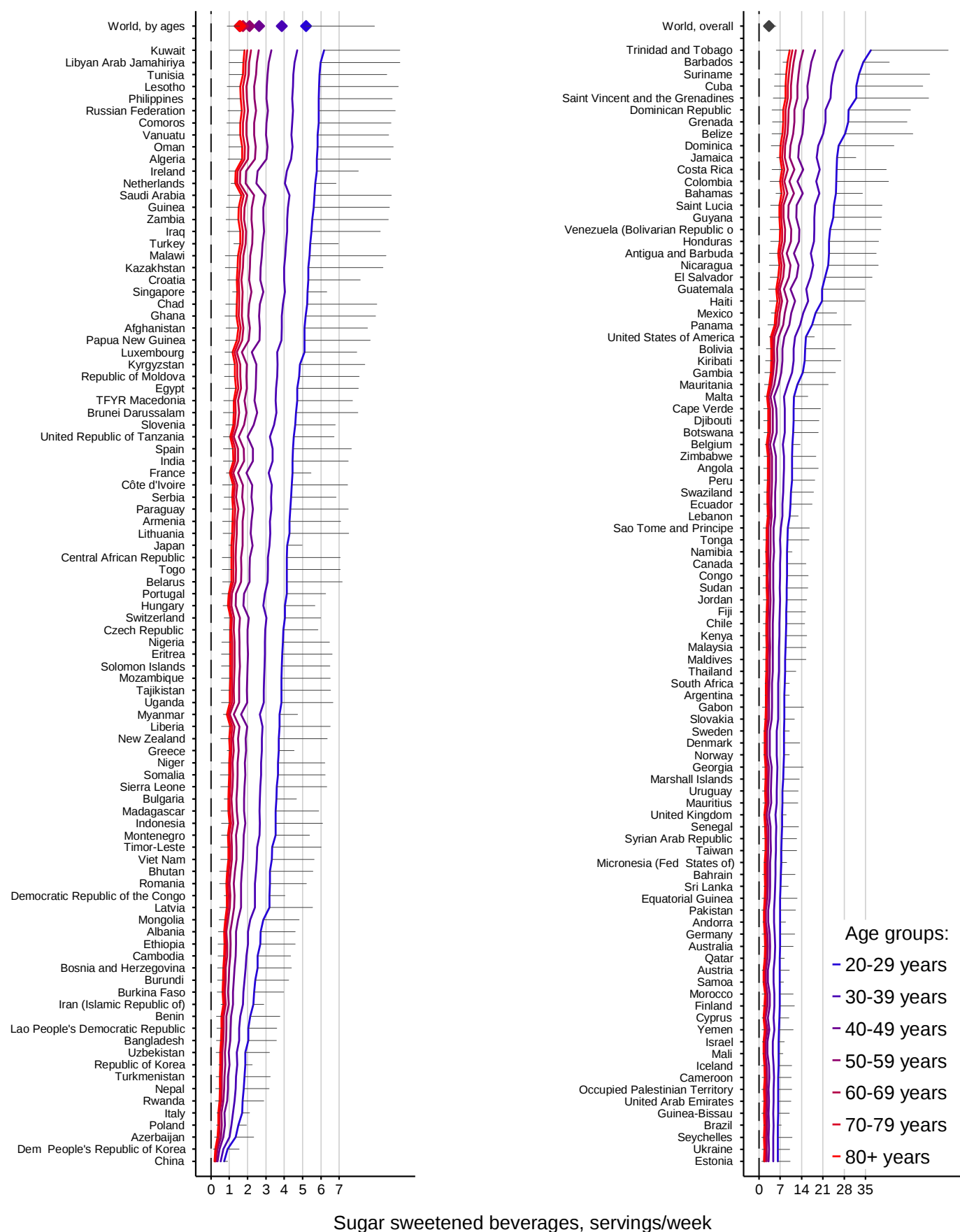
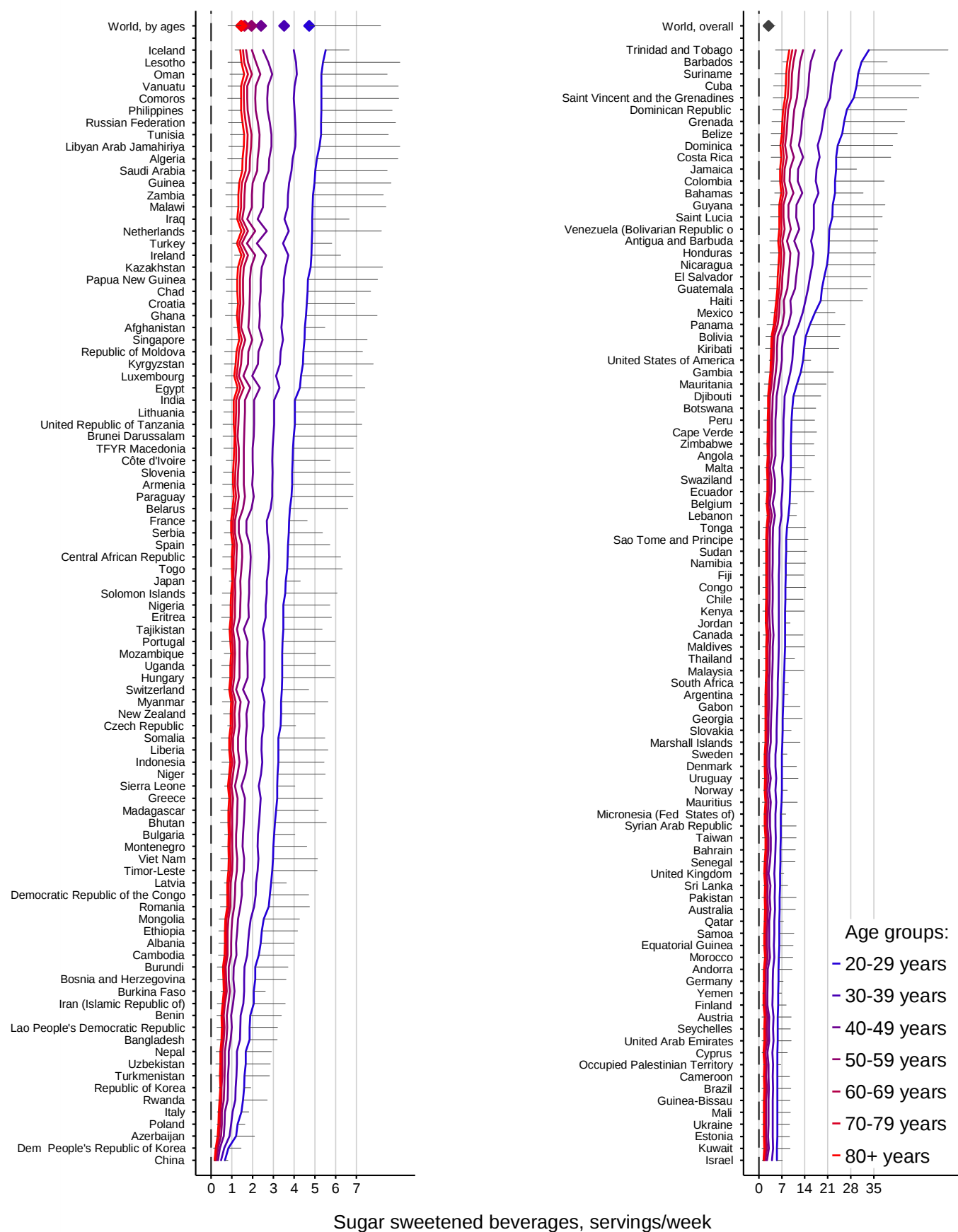


Figure S14. Sugar sweetened beverage consumption among men and women aged 20 years or older in 187 countries. The unit is 1 serving (=8 oz or 226.8 ml) per week. Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for sugar sweetened beverage consumption.

Sugar sweetened beverage consumption among women



Unprocessed red meat consumption among men

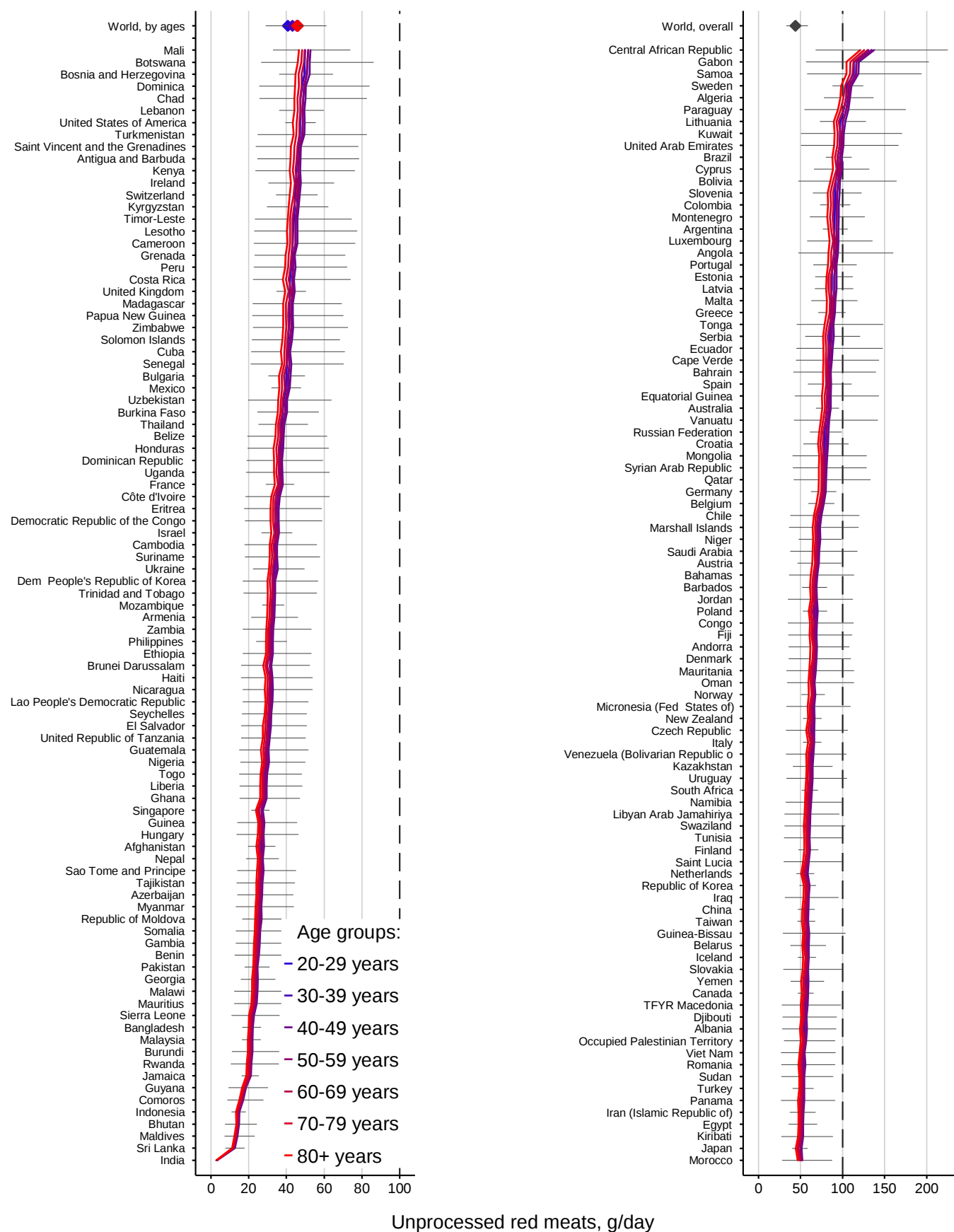
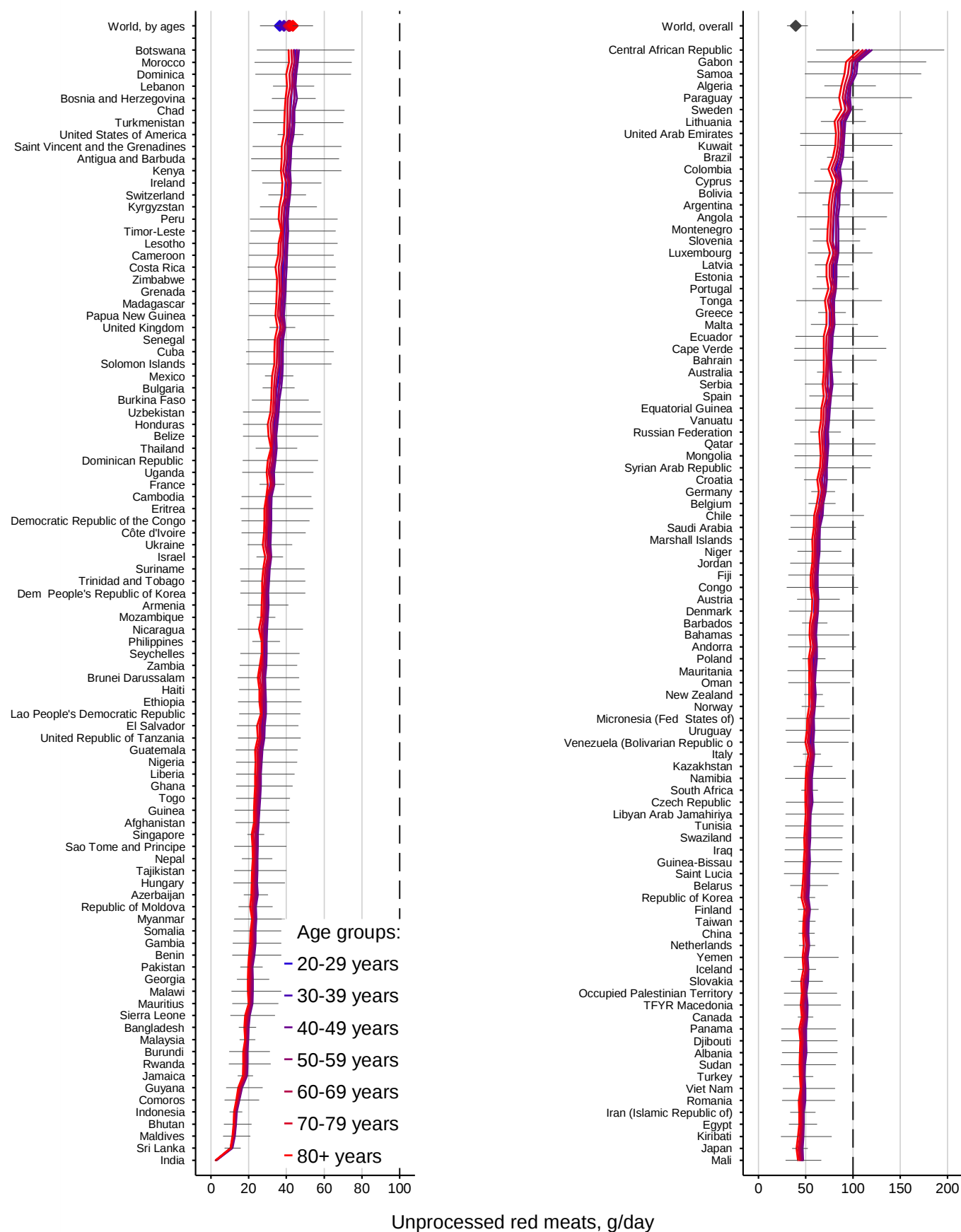


Figure S15. Unprocessed red meat consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for processed meat consumption.

Unprocessed red meat consumption among women



Processed meat consumption among men

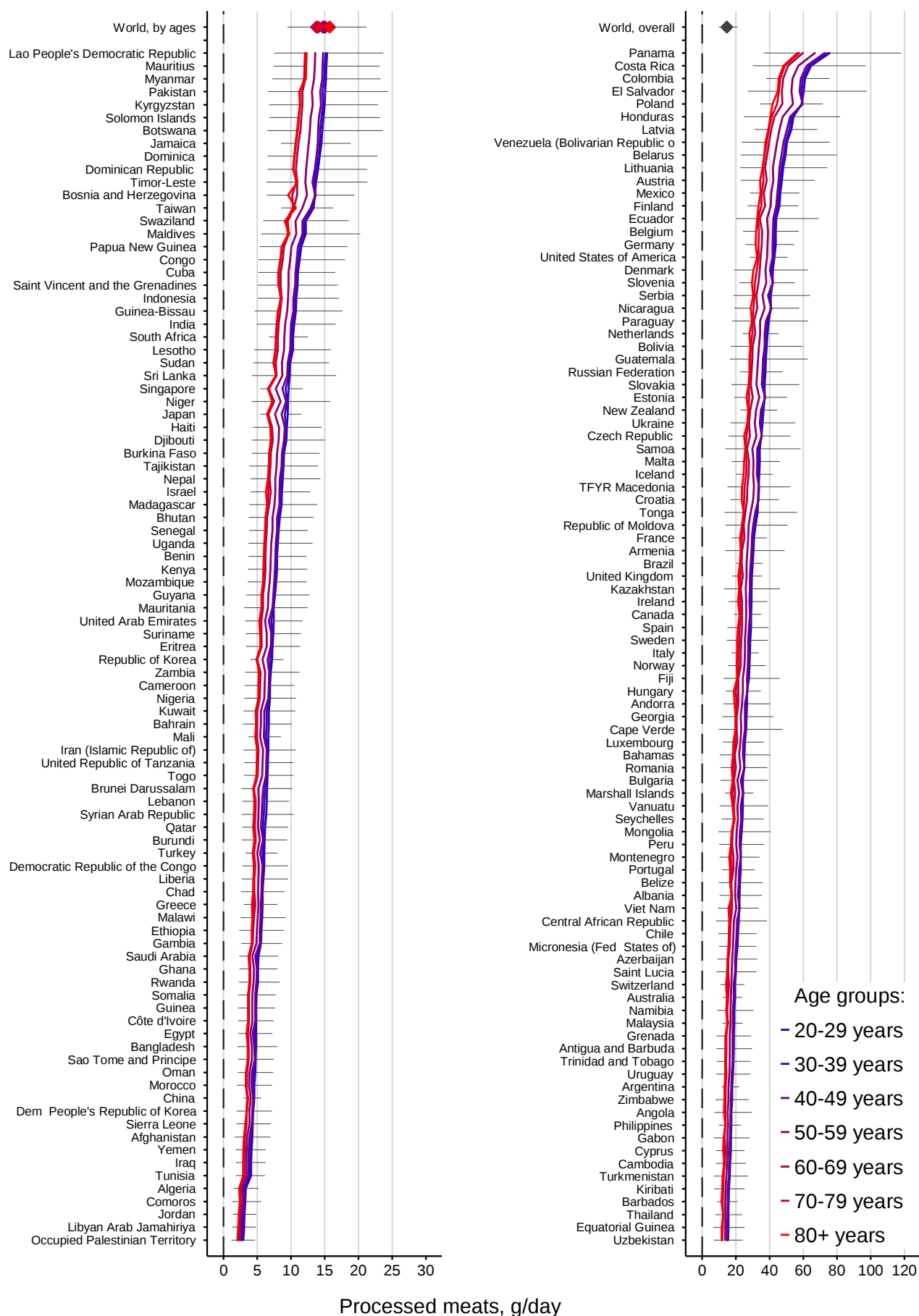
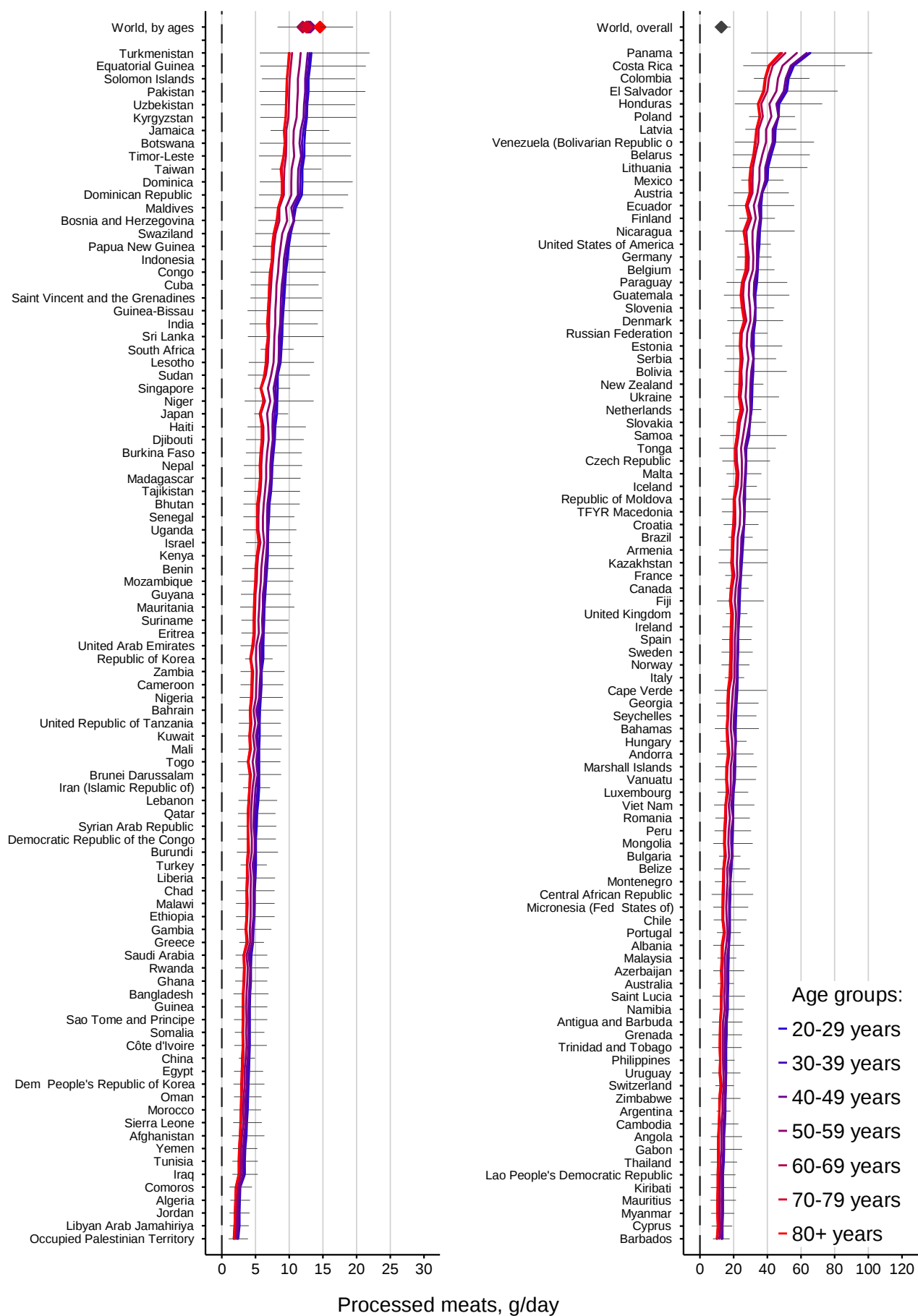


Figure S16. Processed meat consumption among men and women aged 20 years or older in 187 countries. Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for unprocessed red meat consumption.

Processed meat consumption among women



Saturated fat consumption among men

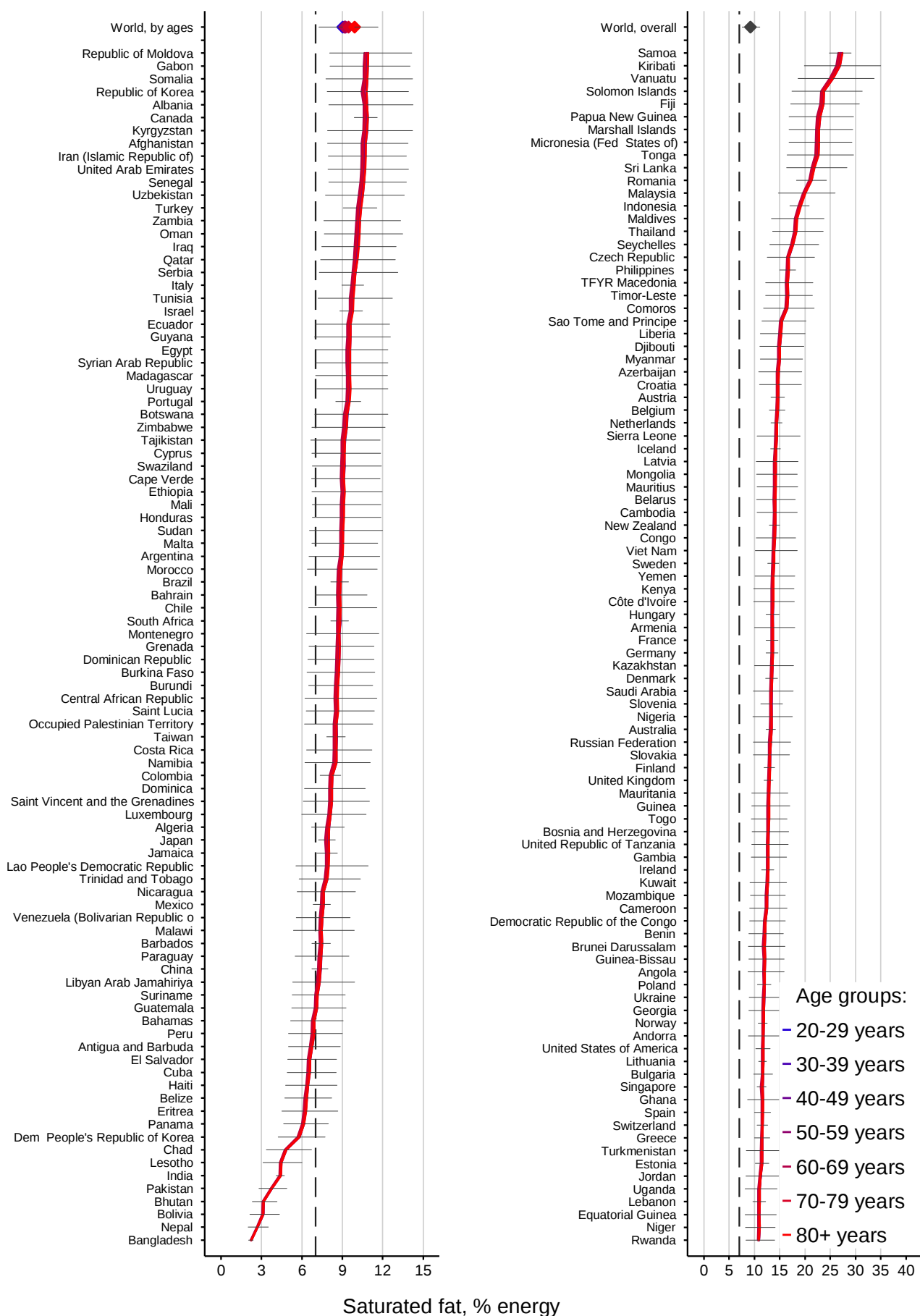
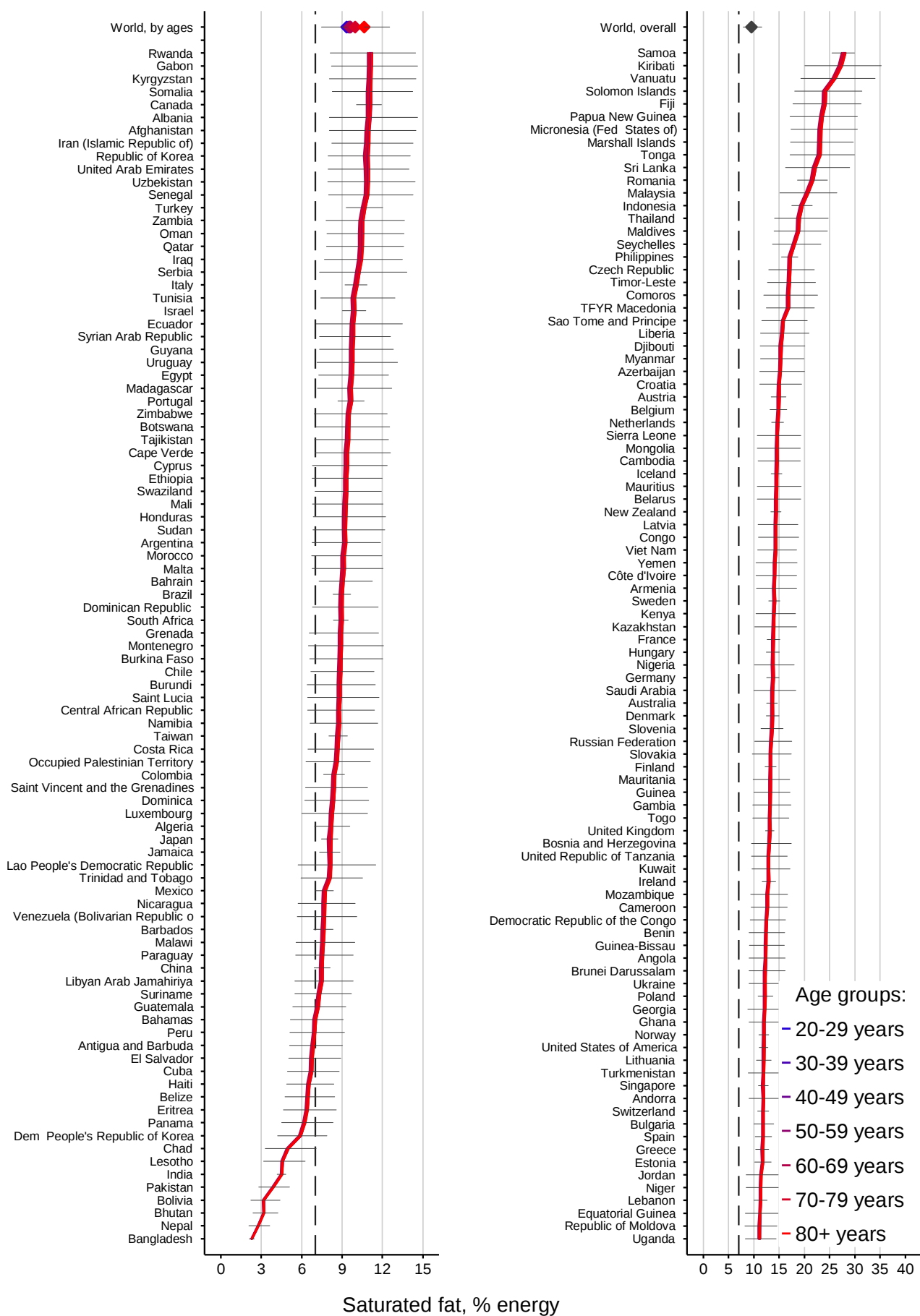


Figure S17. Saturated fat consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for saturated fat consumption.

Saturated fat consumption among women



Consumption of trans fatty acids among men

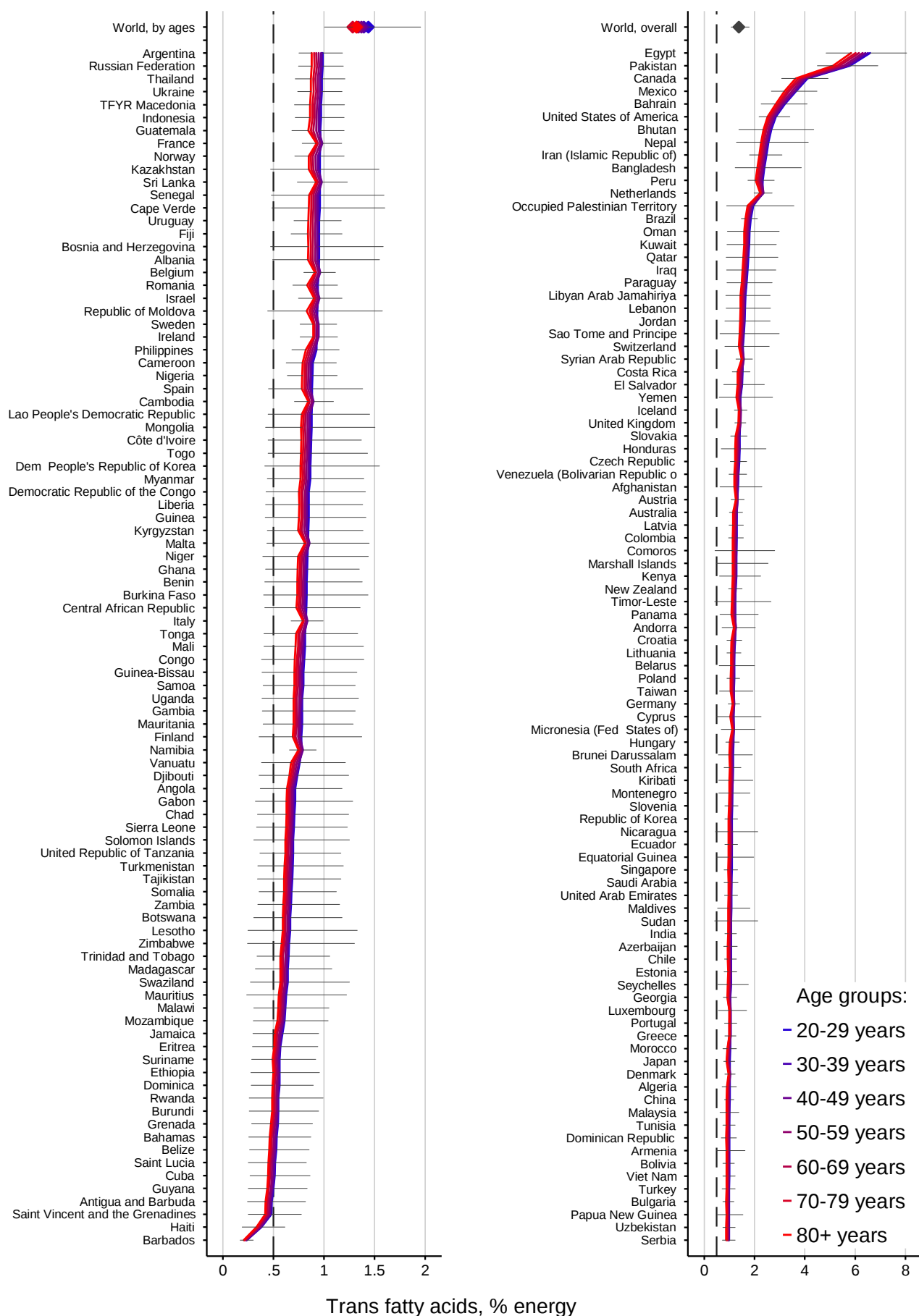
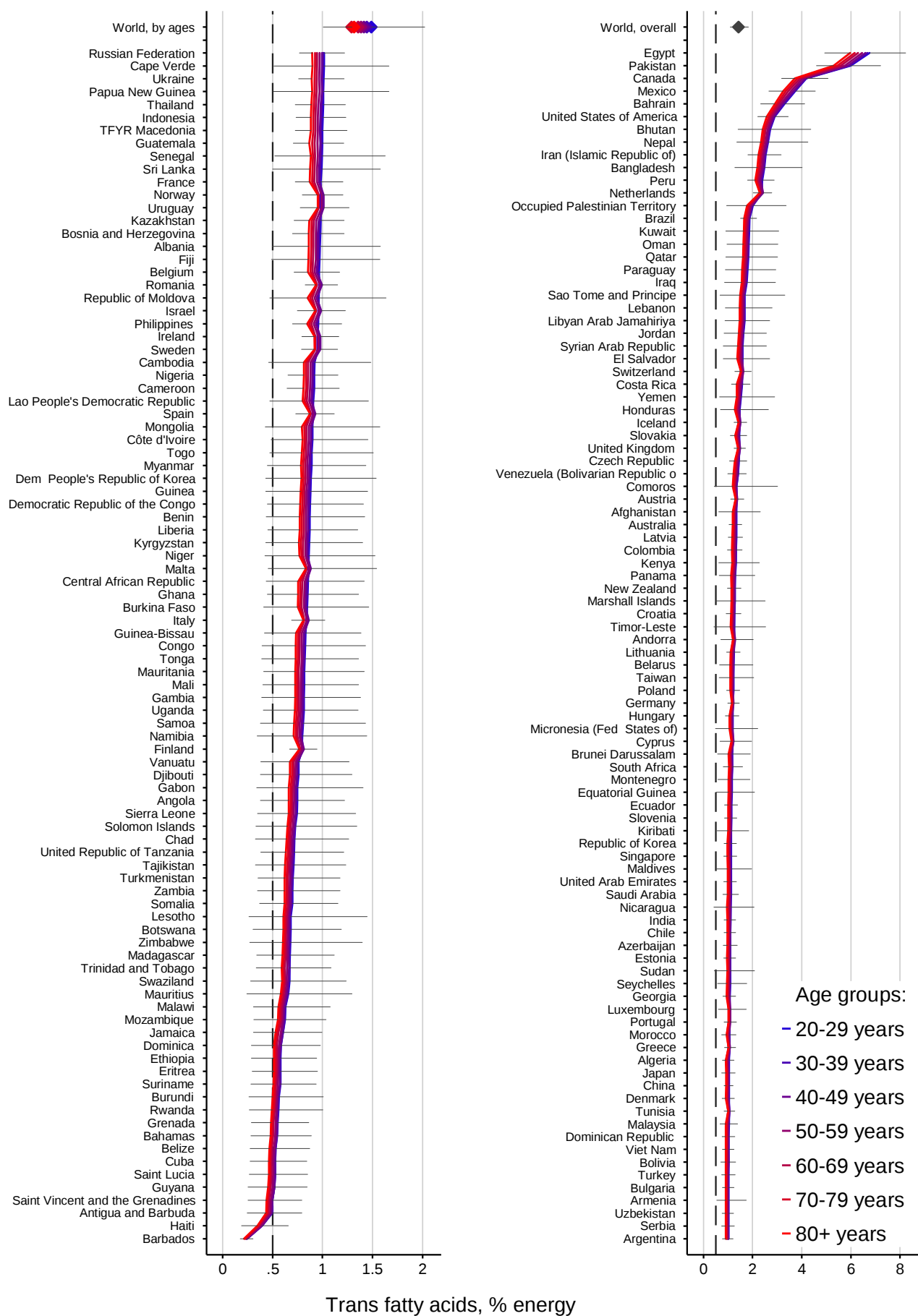


Figure S18. Consumption of trans fatty acids among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for trans fatty acid consumption.

Consumption of trans fatty acids among women



Dietary cholesterol consumption among men

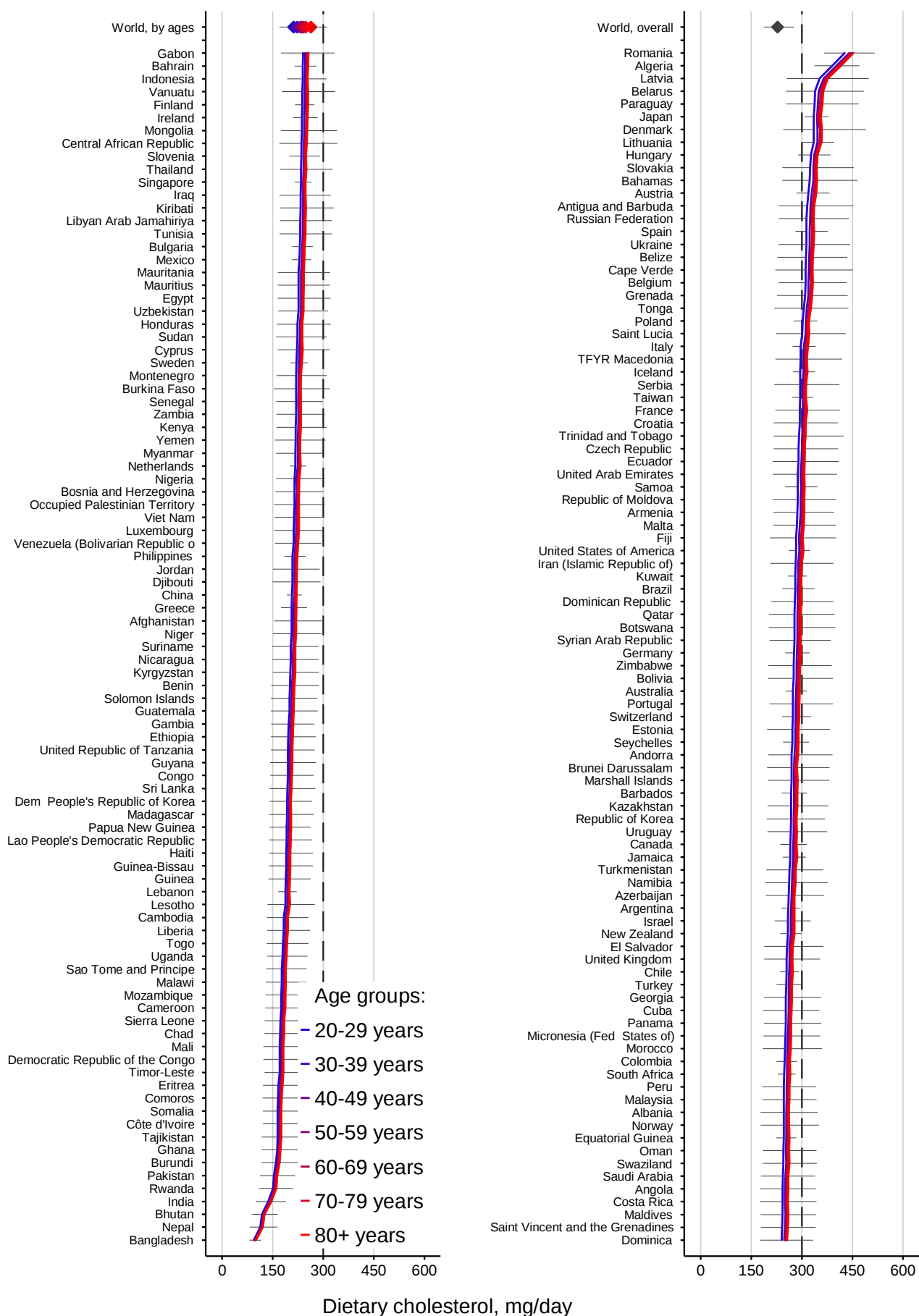
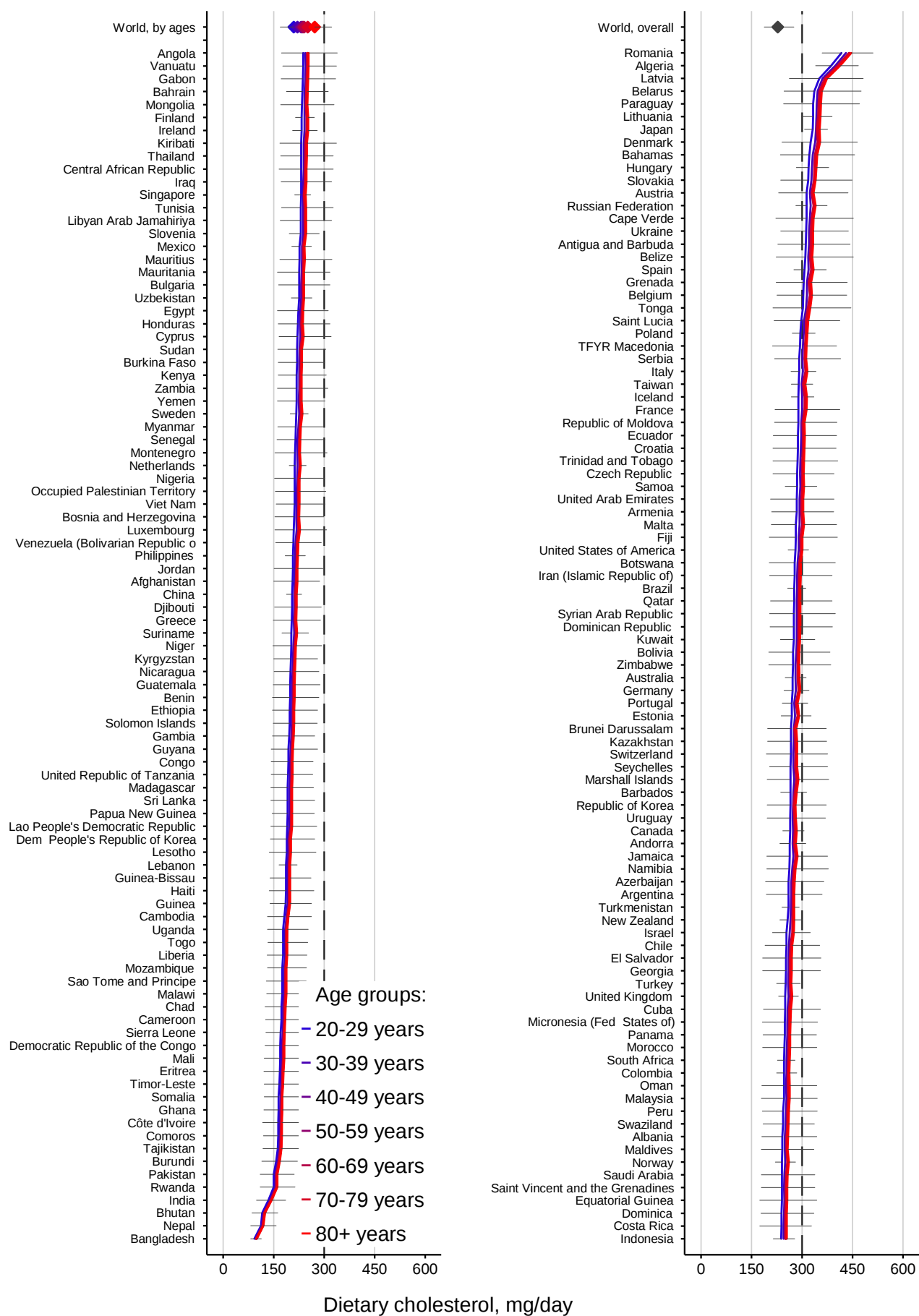


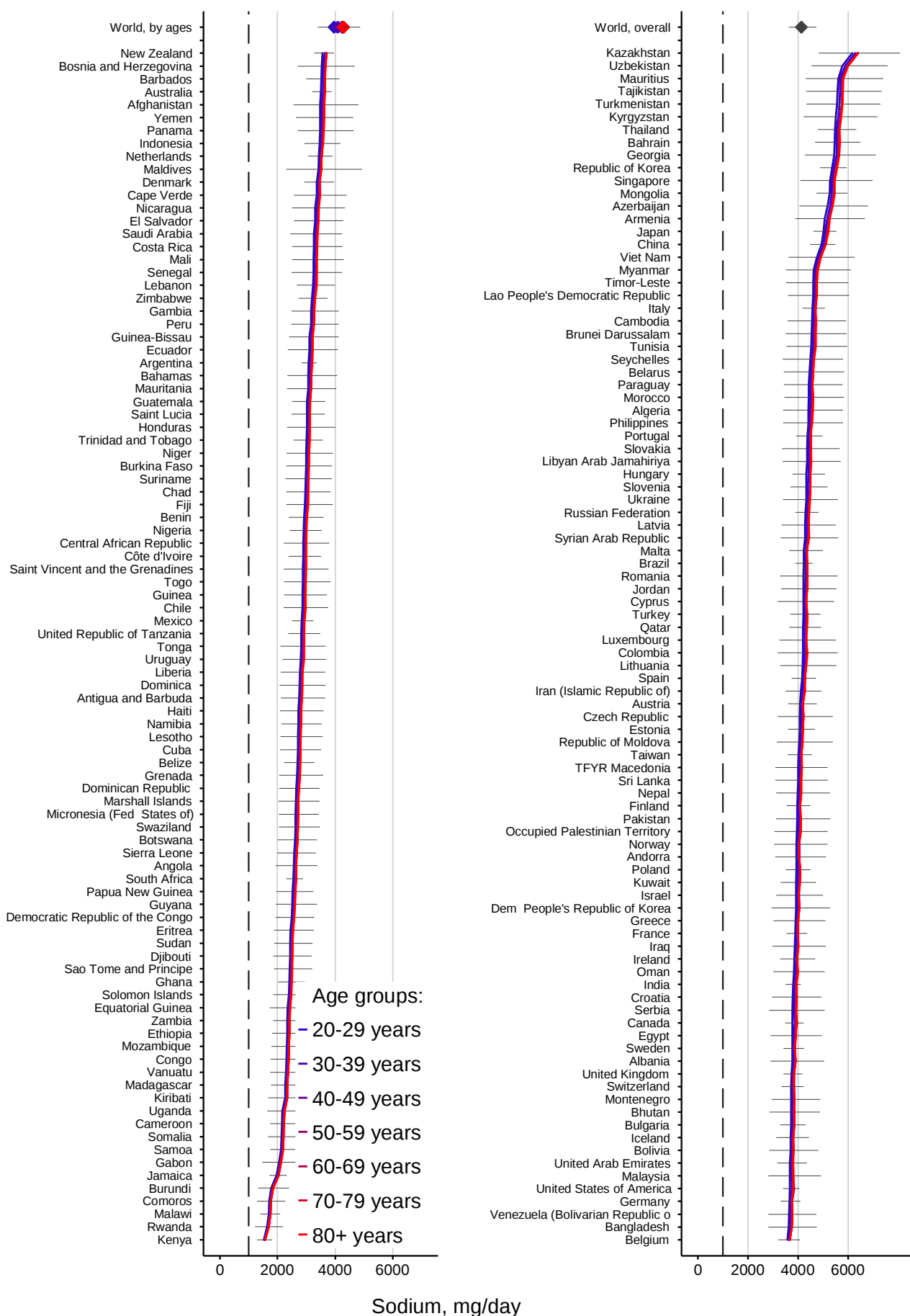
Figure S19. Dietary cholesterol consumption among men and women aged 20 years or older in 187 countries.

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for dietary cholesterol consumption.

Dietary cholesterol consumption among women

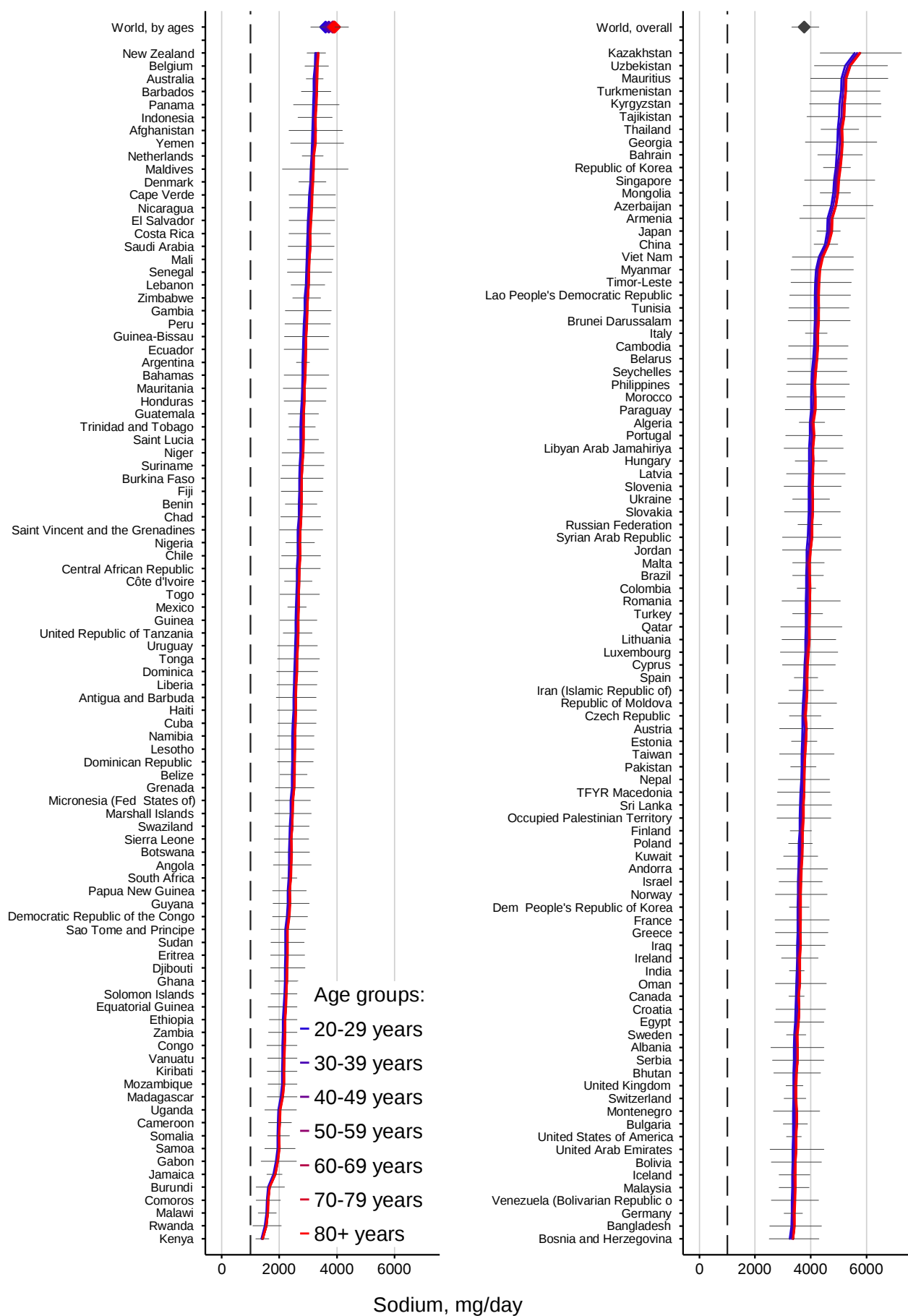


Sodium consumption among men

**Figure S20. Sodium consumption among men and women aged 20 years or older in 187 countries.**

Countries are ordered by the mean consumption levels among men and women with 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for sodium consumption.

Sodium consumption among women



Dietary patterns based on more healthful foods/nutrients, men

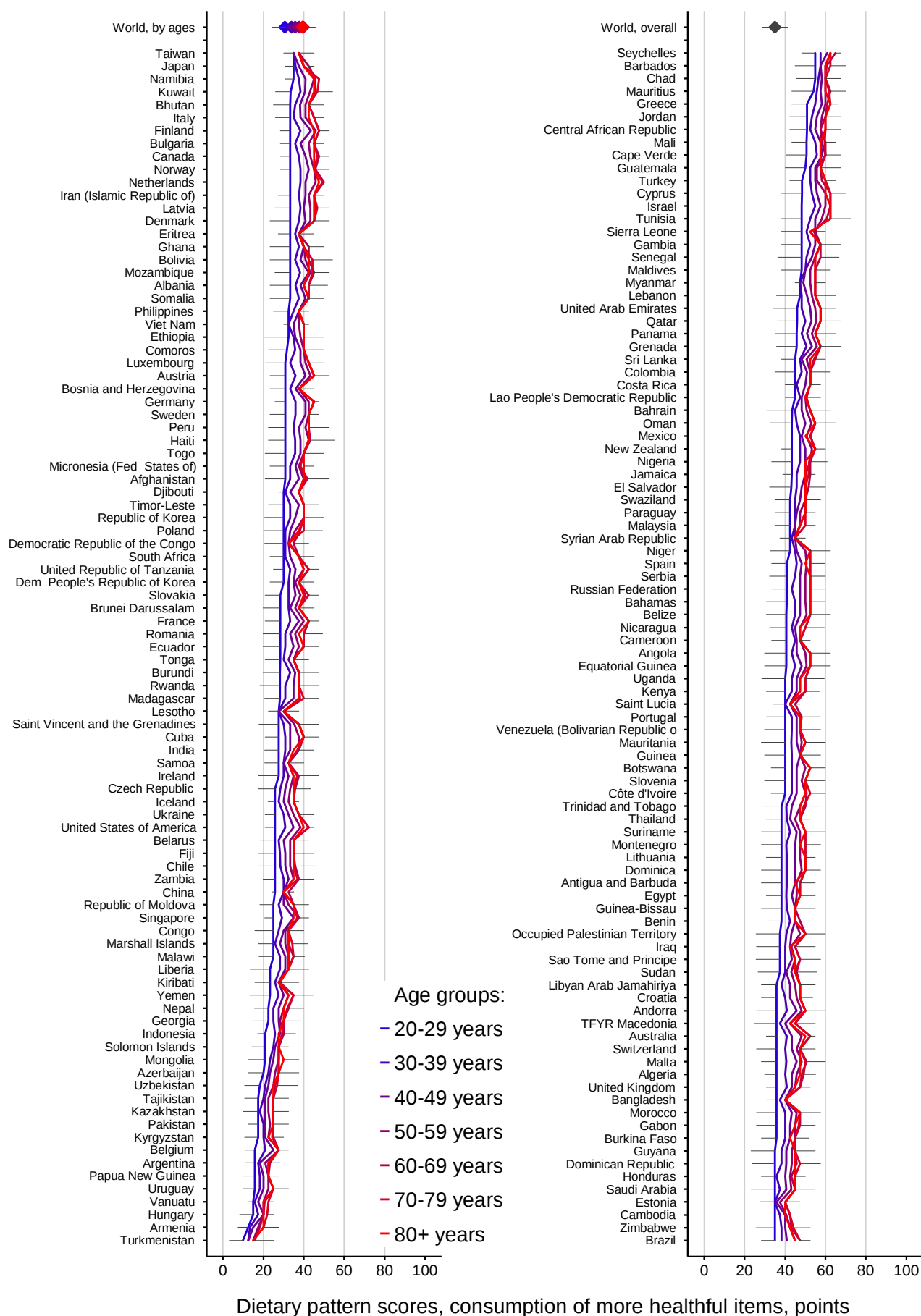
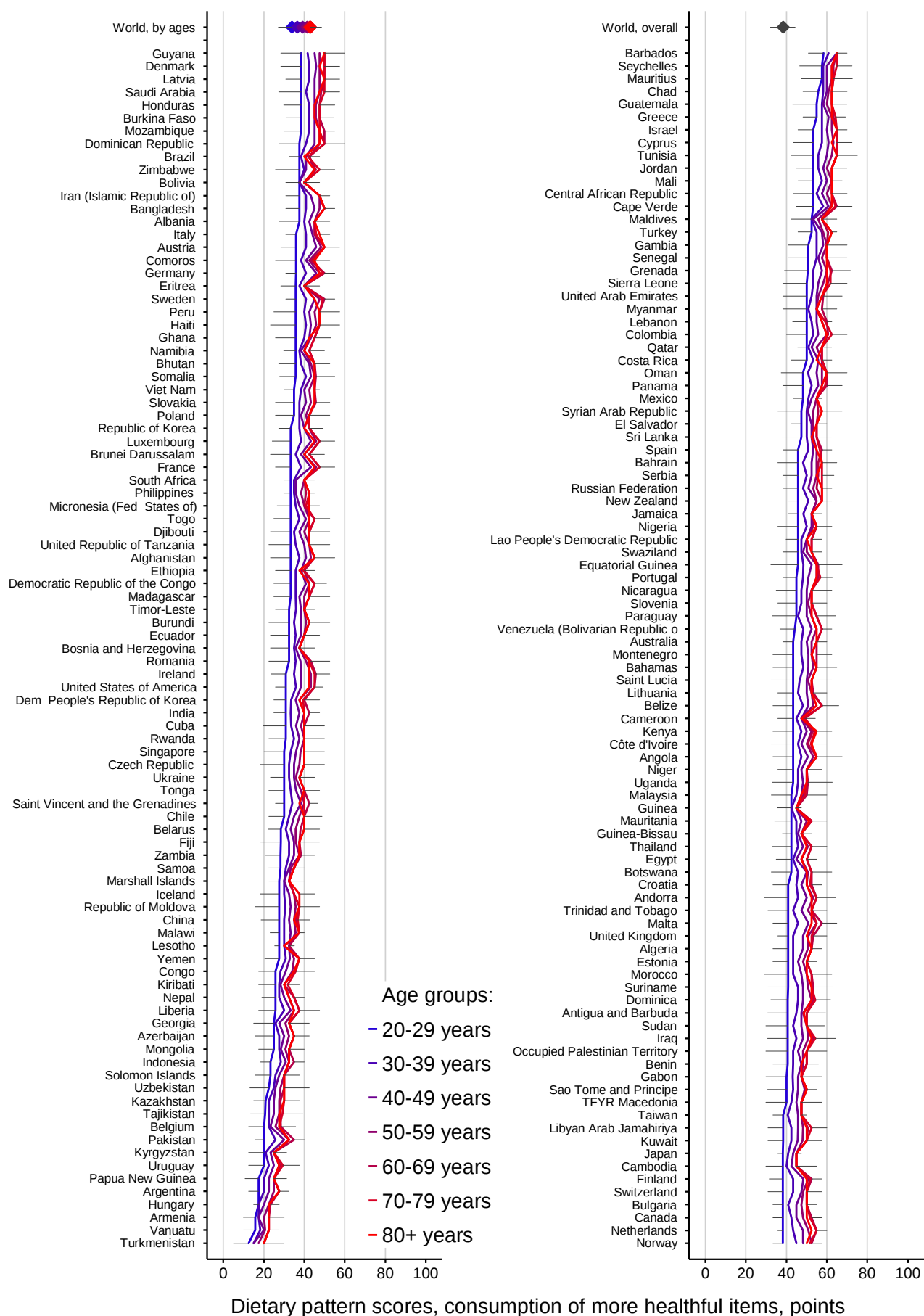


Figure S21. Dietary patterns based on consumption of more healthful foods and nutrients among men and women aged 20 years or older in 187 countries. Countries are ordered by the scores of the group of 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for sodium consumption.

Dietary patterns based on more healthful foods/nutrients, women



Dietary patterns on fewer unhealthful foods/nutrients, men

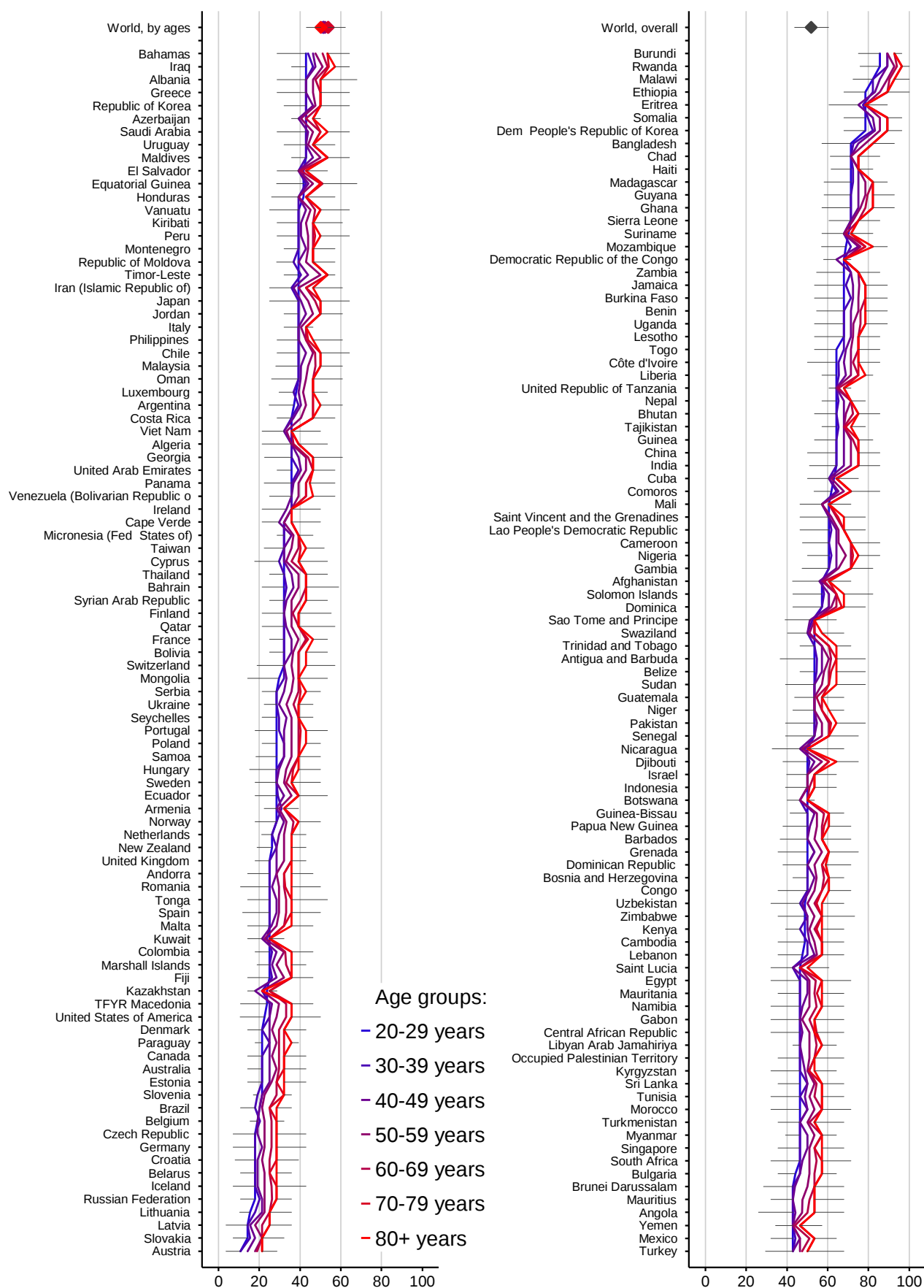
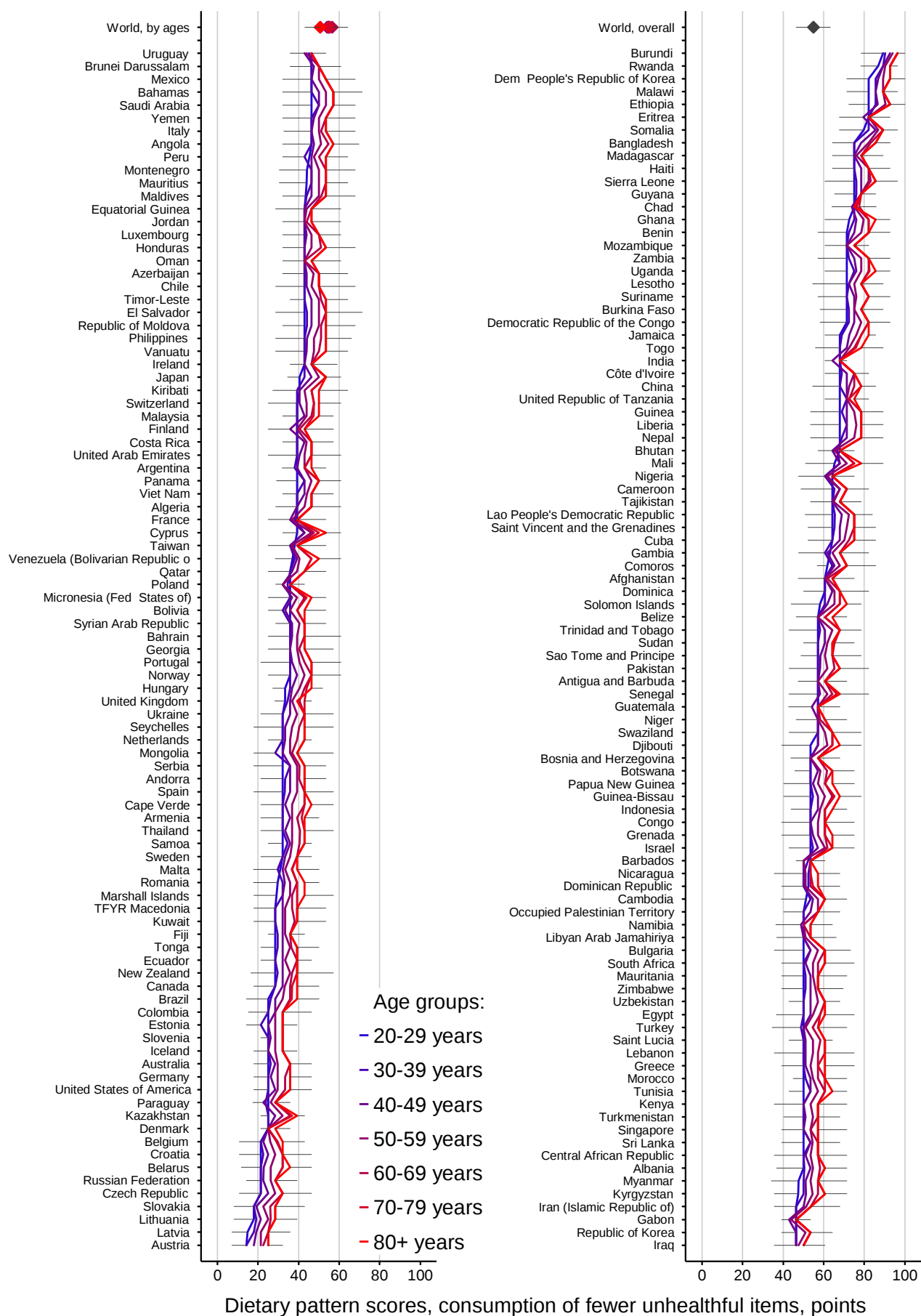


Figure S22. Dietary patterns based on consumption of lesser unhealthful foods and nutrients among men and women aged 20 years or older in 187 countries. Countries are ordered by scores of the subgroups of 20-29 years of age, from the lowest at the bottom-left to the highest at the top-right. Error bars for each country represent a lower side of 95% uncertainty interval (UI) for the lowest estimate and an upper side of 95% UI for the highest estimate. The dashed vertical line represents mean of the theoretical minimal risk exposure distribution for sodium consumption.

Dietary patterns on fewer unhealthful foods/nutrients, women



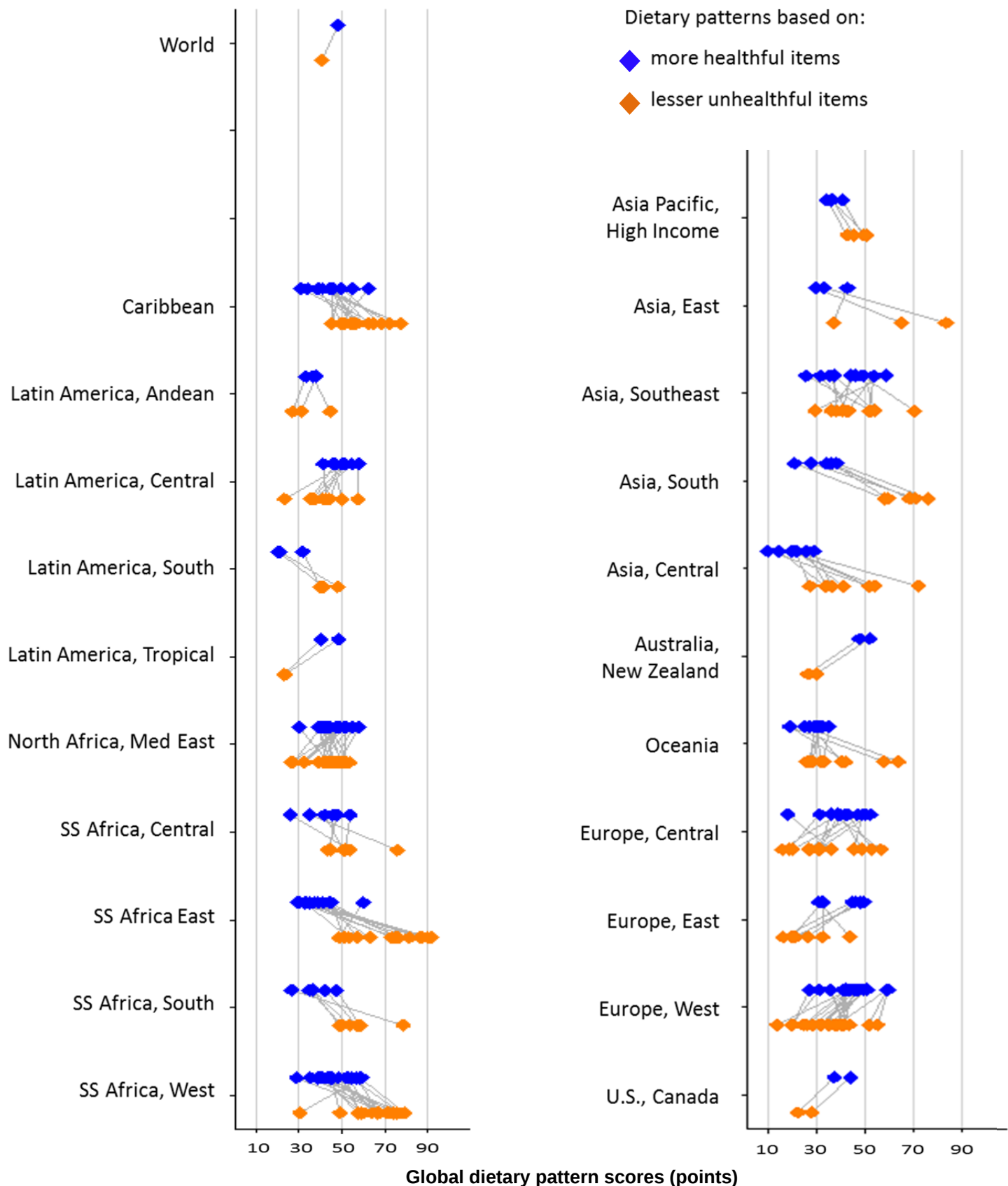


Figure S23. Global dietary patterns of 187 countries in 21 world regions. Two diet quality measures of each country are displayed. Two dots from each country are connected with a grey line. Blue represents diet quality based on greater consumption of 10 healthful foods/nutrients. Orange represents diet quality based on lesser consumption of 7 unhealthful foods/nutrients. The possible score is from 0 (the worst quality) to 100 (the best quality). SS, Sub-Saharan; U.S., United States.

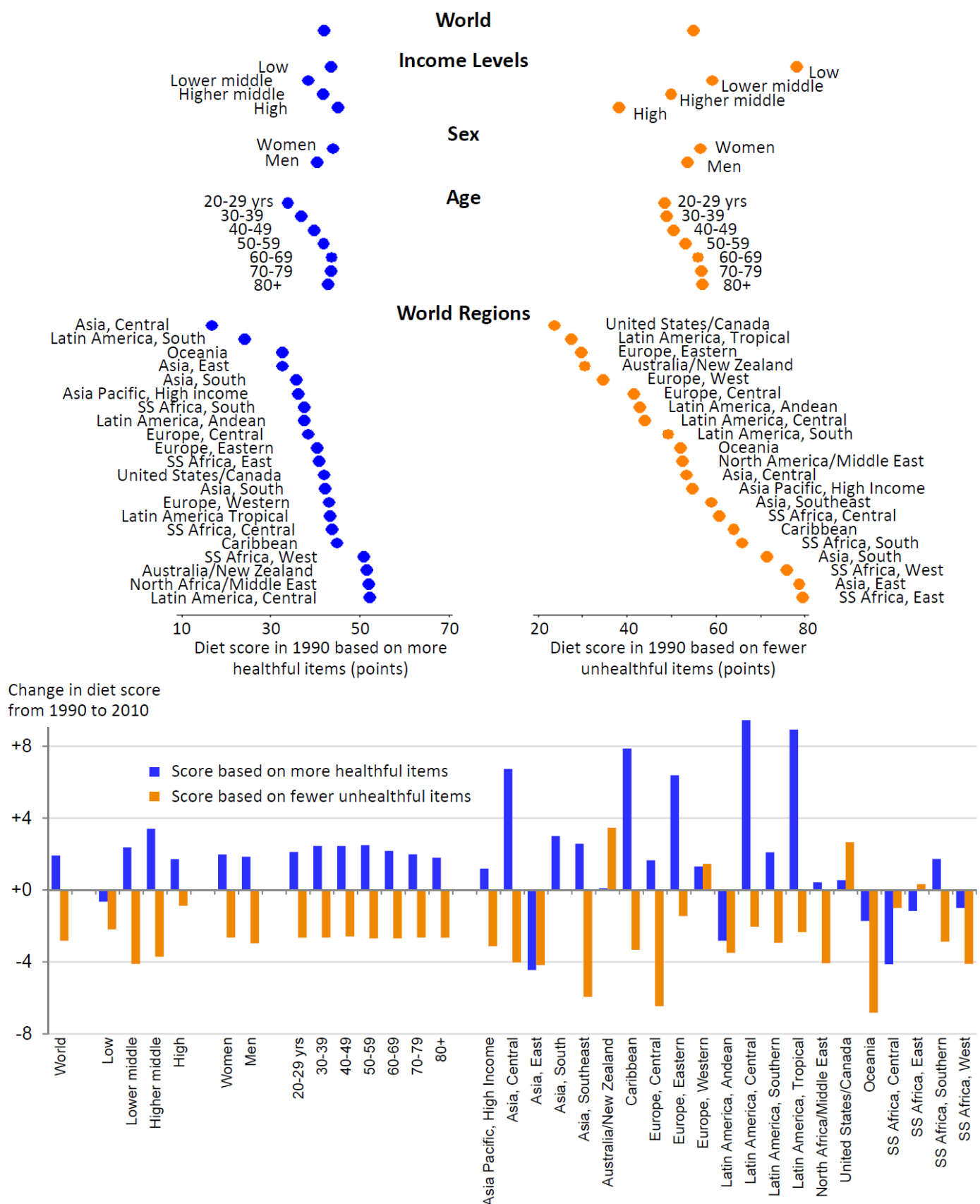


Figure S24. Dietary patterns in 1990 and change from 1990 to 2010 among men and women by demographics and world regions. Top) Diet scores based on more healthful items (left) and fewer unhealthful items (right) in 1990. Bottom) Changes in the two diet scores from 1990 to 2010. More healthful items (n=10) included fruits, vegetables, beans and legumes, nuts and seeds, whole grains, milk, polyunsaturated fatty acids, fish, plant omega-3 PUFA, and fibre. Unhealthful items (n=7) included unprocessed red meats, processed meats, sugar-sweetened beverages, saturated fat, trans fat, dietary cholesterol, and sodium. Values represent change in degrees of adherence to each dietary pattern scaled to be 0 (least healthful) to 100 (most healthful) in each year. Abbreviation: SS, Sub-Saharan.

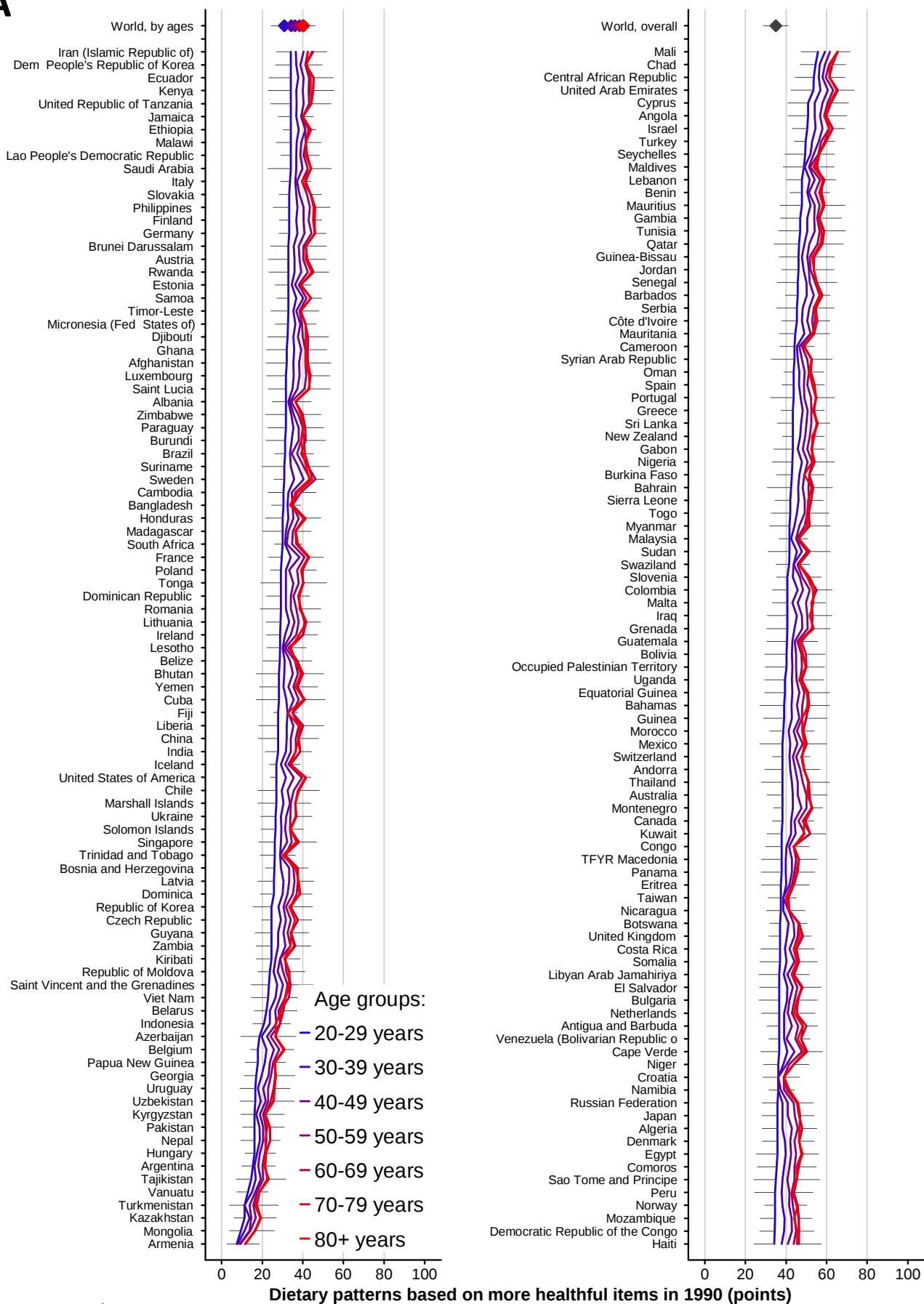
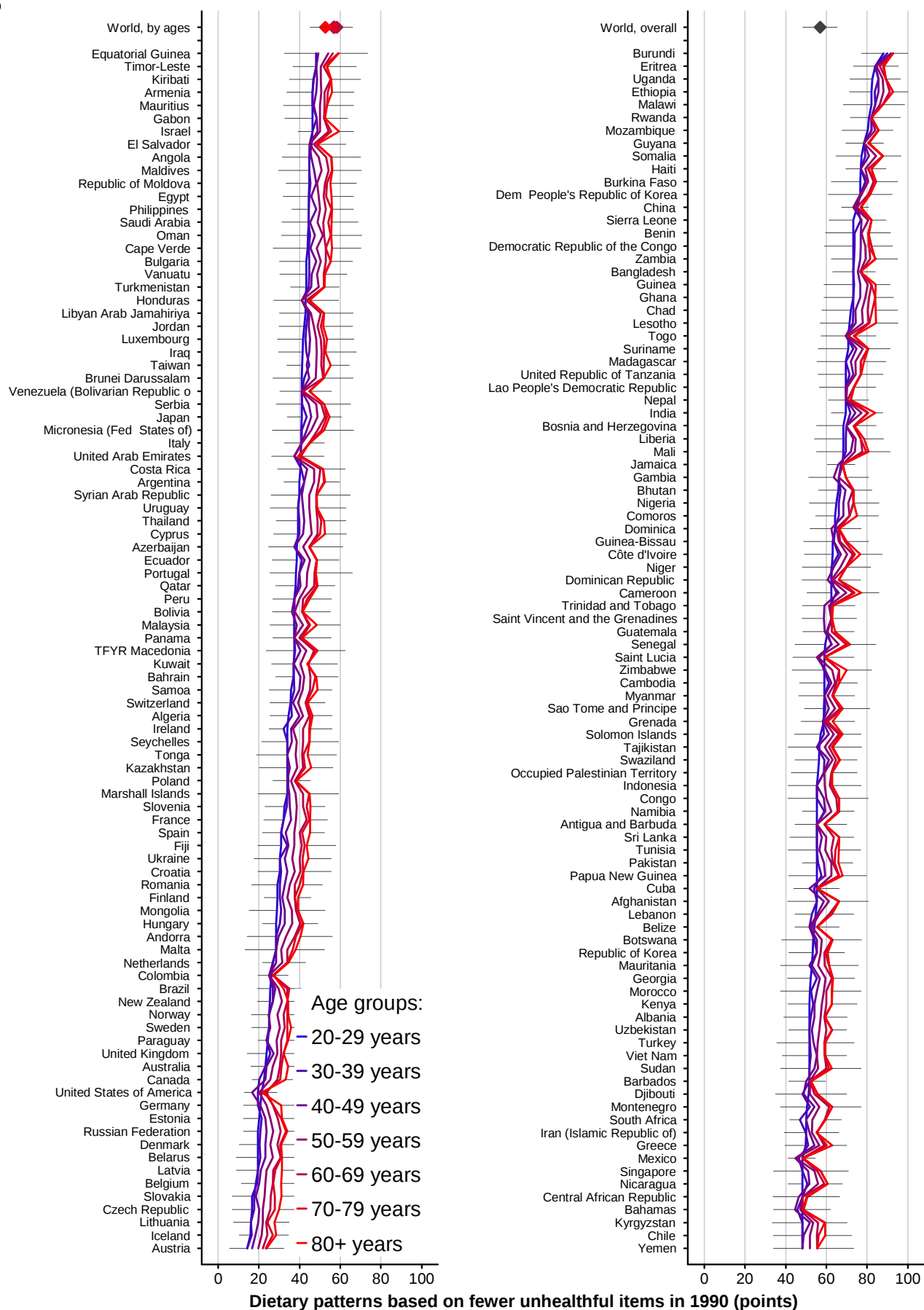
A

Figure S25. Dietary patterns in 1990 among men and women in 187 countries. A. Dietary pattern based on higher consumption of fruits, vegetables, beans and legumes, nuts and seeds, whole grains, milk, polyunsaturated fatty acids (PUFA), fish, plant omega-3 PUFA, and Fibre. B. Dietary pattern based on fewer consumption of unprocessed red meats, processed meats, sugar-sweetened beverages, saturated fat, trans fat, dietary cholesterol, and sodium. Values represent degrees of adherence to each dietary pattern, ranging from 0 (least healthful) to 100 (most healthful). The countries are ordered by scores among adults aged 20-29 years.

B

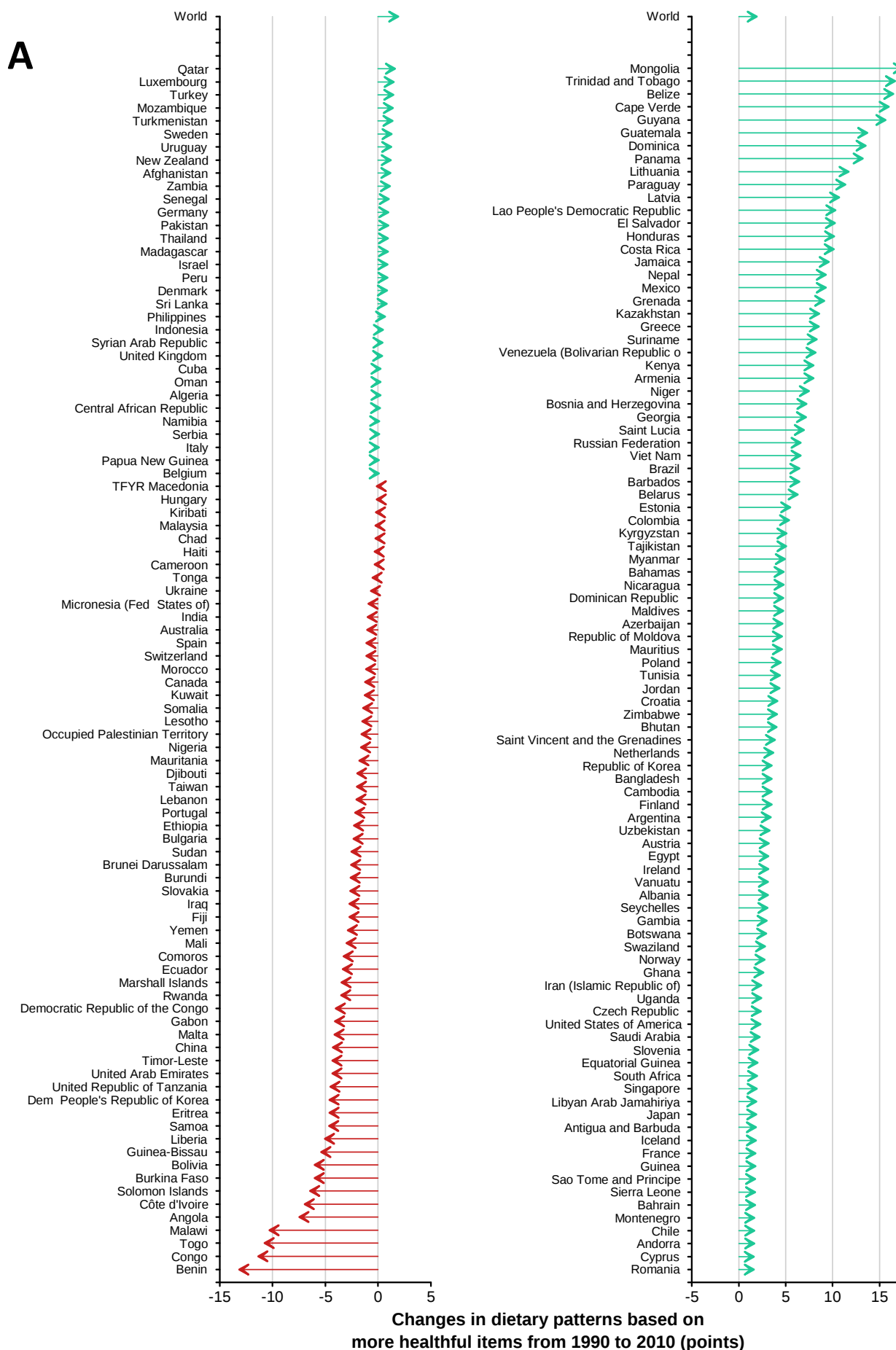
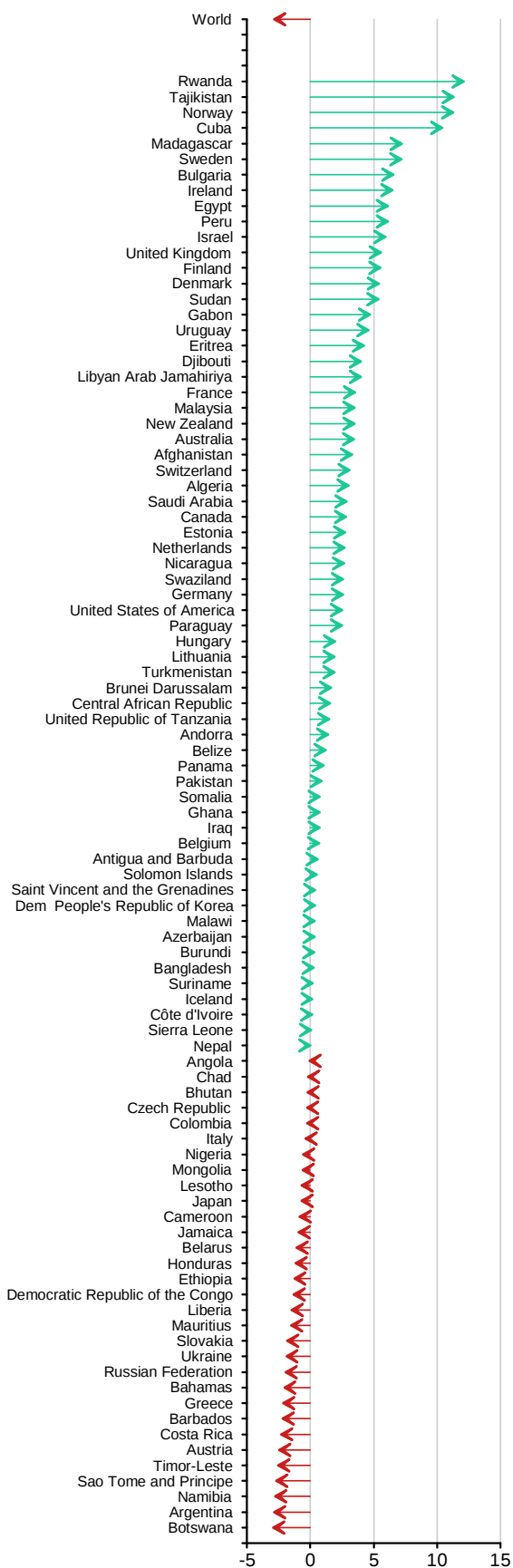
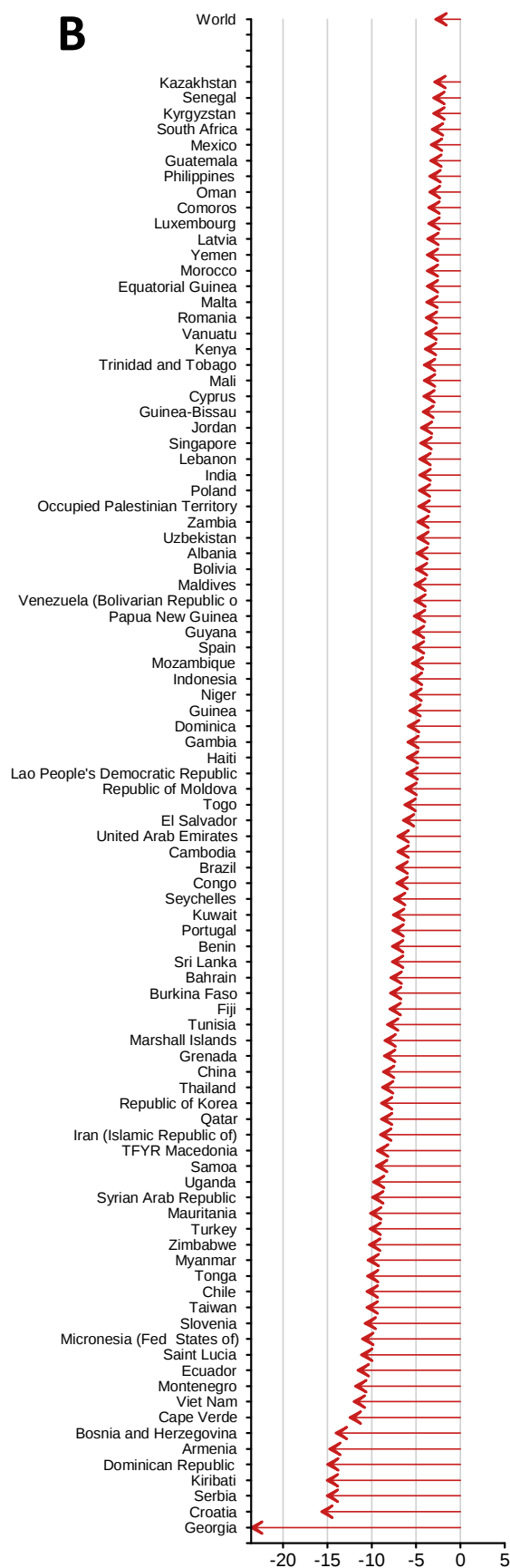


Figure S26. Changes in dietary patterns from 1990 to 2010 among men and women in 187 countries. A. Changes in dietary pattern based on higher consumption of fruits, vegetables, beans and legumes, nuts and seeds, whole grains, milk, polyunsaturated fatty acids (PUFA), fish, plant omega-3 PUFA, and fibre. B. Changes in dietary pattern based on fewer consumption of unprocessed red meats, processed meats, sugar-sweetened beverages, saturated fat, trans fat, dietary cholesterol, and sodium. Each change (Red=worsening; green=improvement) was calculated by subtracting a country mean score in 2010 from that in 1990; each score represented degrees of adherence to each dietary pattern ranging from 0 (least healthful) to 100 (most healthful).

B

Changes in dietary patterns based on fewer unhealthy items from 1990 to 2010 (points)

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