The exposome and compliance with physical distancing measures during the COVID-19 pandemic, Cyprus, 2020

Exposome@Home|COVID-19

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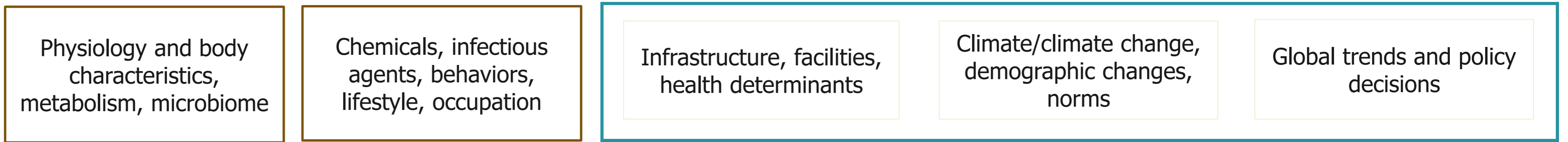| Exposome components/groups modified during the COVID-19 pandemic	Exposure to SARS-CoV-2 Contacts at work/outside of work Pre-existing health conditions Diet and exercise Access to treatments/medication		Mobility restrictions Local climate changes Safety of green/blue space Working habits Use of personal protective equipment Personal hygiene		Global travel limitations and trade changes Population density Access to health care (e.g., SES) and interruption on other routine public health programs/interventions Population-level measures (e.g., lockdowns, quarantines, gatherings) Policy support to follow personal protective measures Availability of treatment and/or vaccine
Exposome components/groups	Physiology and body characteristics, metabolism, microbiome	Chemicals, infectious agents, behaviors, lifestyle, occupation	Infrastructure, facilities, health determinants	Climate/climate change, demographic changes, norms	Global trends and policy decisions
Human exposome domains (unit of reference: individuals)	Internal	Specific external	General external		
Urban exposome domains (unit of reference: cities and within-city areas)			Internal	Specific external	General external
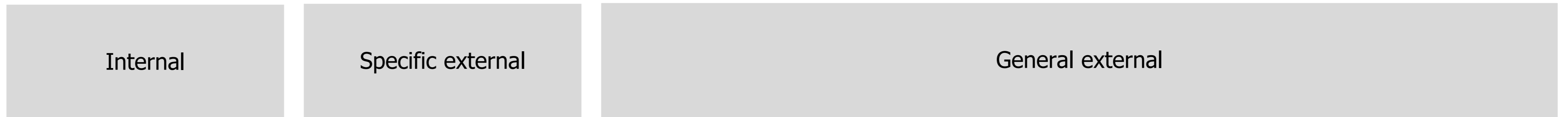
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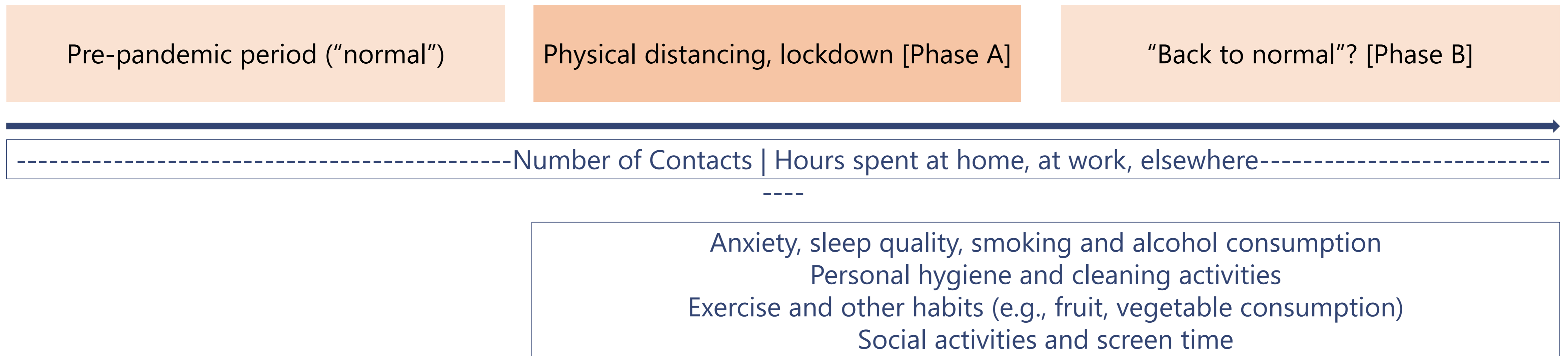| General external domain |
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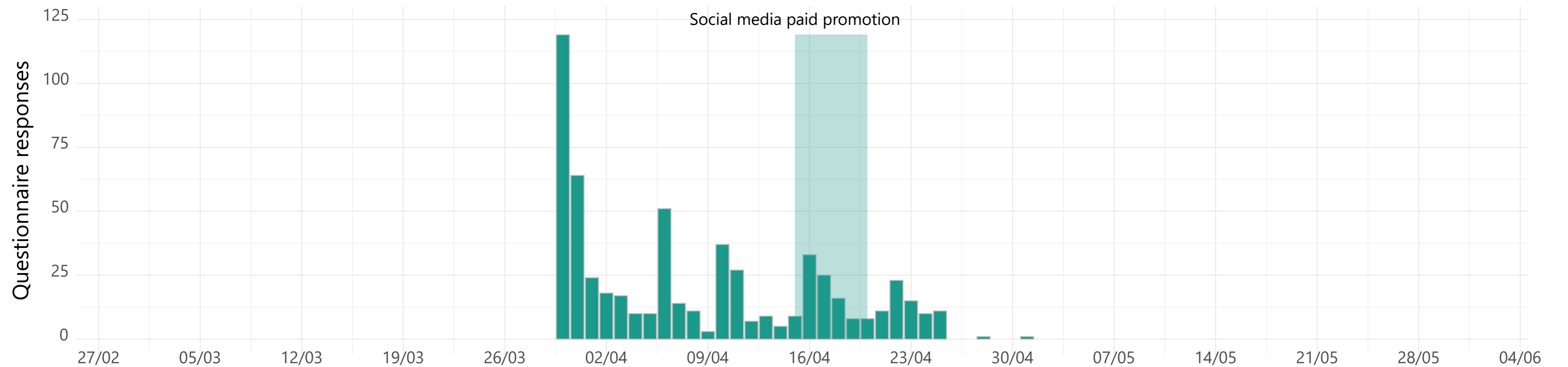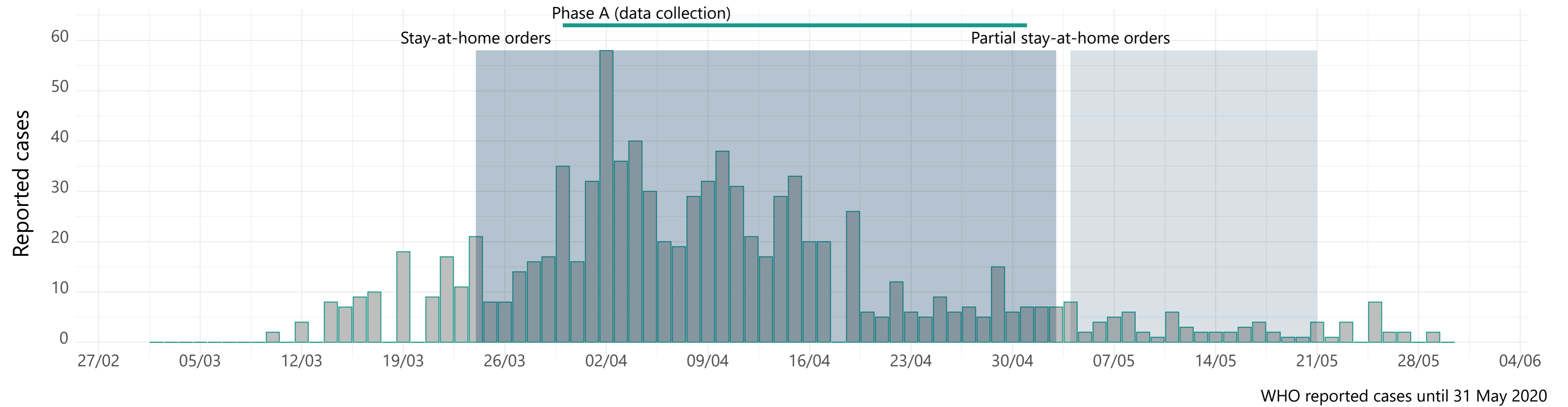| Specific external domain |
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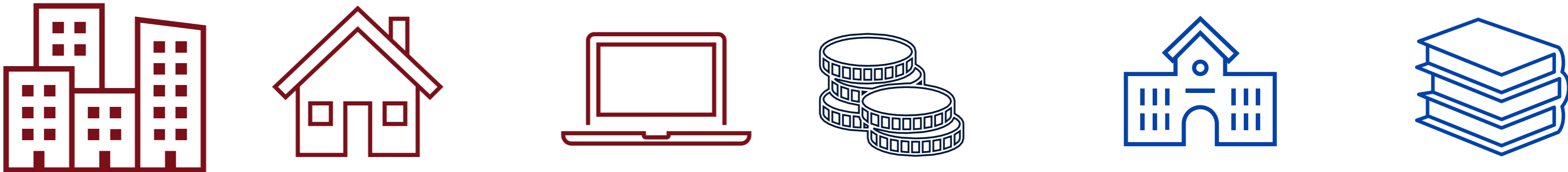
Internal domain

Study design: survey in two phases (online questionnaire)

General: Respondent characteristics (time, place, person) incl. general health

Pre-pandemic period ("normal")	Physical distancing, lockdown [Phase A]	"Back to normal"? [Phase B]

--Number of Contacts | Hours spent at home, at work, elsewhere--

Anxiety, sleep quality, smoking and alcohol consumption
Personal hygiene and cleaning activities
Exercise and other habits (e.g., fruit, vegetable consumption)
Social activities and screen time

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597 respondents

41.9% Limassol
39.9% Nicosia
9% Larnaka
4.7% Paphos
4.5% Famagusta

Mean age:
39.4 years (±12.8)

61.8% females
37.7% males
0.5% no response

402 (67.3%) full time employment
>50% university degree

229 (50.1%) married
365 (61.1%) good health

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State of anxiety score, STAI-State (median [IQR]):
50 [44, 54] females | 46 [36, 52] males

Sleep efficiency (% median [IQR]):
88 [77, 94] females | 90 [80, 97] males

Smoking (daily)
23% [19% females | 28% males]

Alcohol consumption (daily)
7% [5% females | 11% males]

Handwashing > 7 times/day:
- 48% [52% γυναίκες | 40% males]

Daily use of social media for communication (%)
- Family/relatives: 76% [82% females | 67% males]
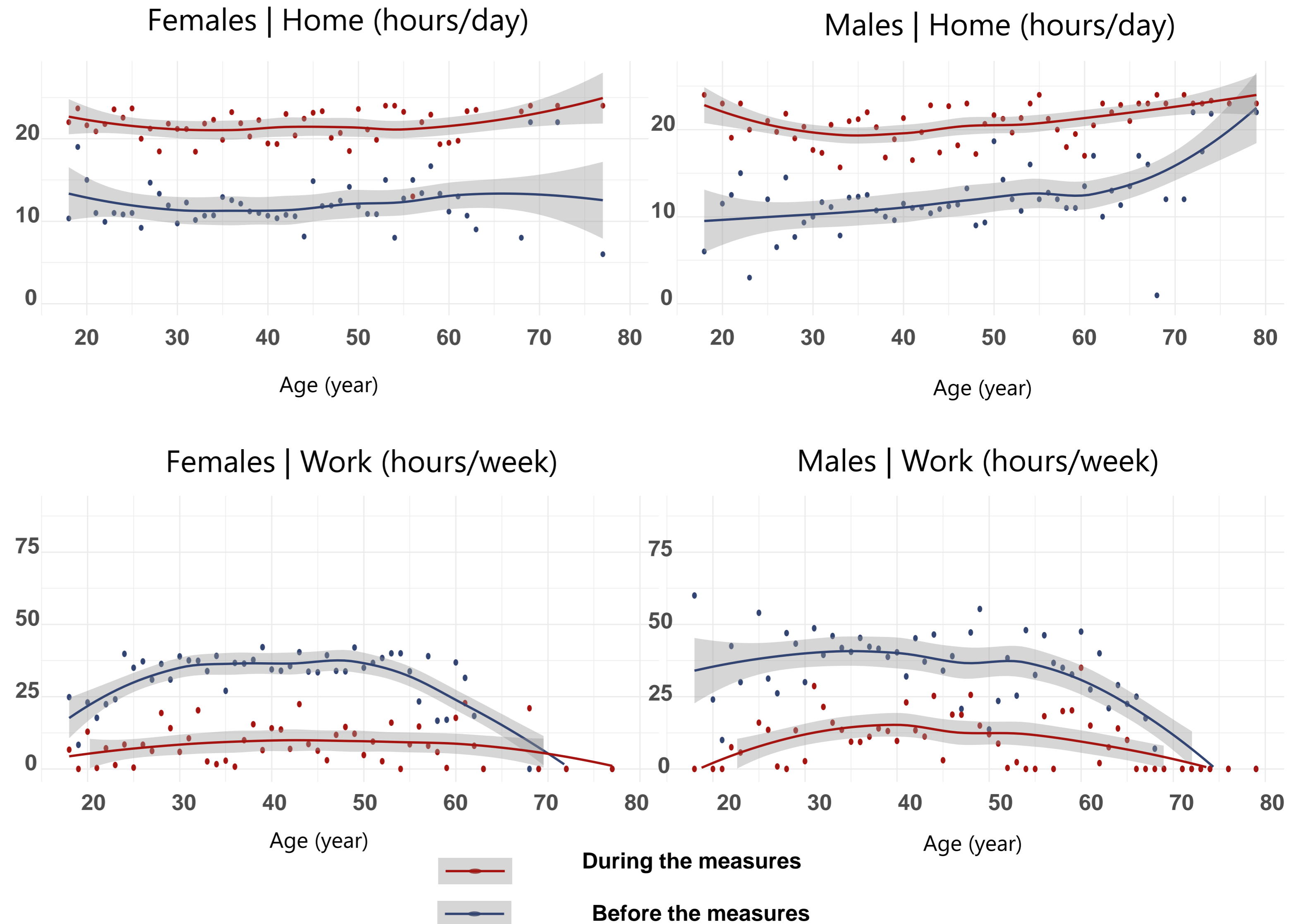
- Friends: 65% [66% females | 64% males]

- Coworkers: 47% [44% females | 52% males]

IQR: interquartile range

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Compliance

- Decrease in the number of contacts
    - At home (median from 3 to 2)
    - At work (median from 15 to 2)
    - Elsewhere (median from 10 to 1)

- Increase in the number of hours spent at home and decrease in the number of hours spent at work across all ages

Females | Home (hours/day)

Males | Home (hours/day)

Females | Work (hours/week)

Males | Work (hours/week)

During the measures

Before the measures

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- **Feasibility to conduct comprehensive analysis of exposome parameters**

- **High compliance** to physical distancing measures during the strict restrictions period (March – May 2020)

- **Differences in social contact patterns, anxiety levels, sleep efficiency and habits between males and females** during the measures may reflect **differential impact of the measures and overall different lifestyle habits and responsibilities**

- **Evolving epidemic and public health interventions** lead to **differential impact on the human exposome**

- **Adherence** to measures might be partially explained by the **implementation of strategies** (mandatory vs voluntary, laws vs guidelines)

Exposome and public health interventions during the pandemic in urban centers - How can we continue learning

		Enhanced contact tracing	Quarantine and isolation	Use of personal protective equipment and personal hygiene	Closure of facilities (e.g., schools, universities, green/blue space)	Physical distancing and confinement (lockdowns)
Exposome domains involved	**Urban**	Internal	Internal and specific external	Internal and external	Internal	Internal, general and specific external
	Human	Specific external	Internal	Internal and specific external	Internal and specific external	Internal, and general external or specific external
Intervention outcomes		Allow timely intervention in case of infection	Reduce risk of transmission	Reduce individual risk of infection and prevent transmission	Reduce risk of transmission and protect vulnerable groups (i.e., children) and those coming to contact with them	Reduce risk of transmission/infection
Resolution ("unit") of analysis		Individuals	Individuals/groups	Individuals and groups (e.g., essential workers)	Individual, small area, population groups	Individual, small area, city
Study Designs		Surveys, network analysis		Surveys, trials, qualitative studies	Trials, cohorts/cross-sectional studies, surveys, qualitative studies	Trials, surveys, qualitative studies
Primary sample/data		Questionnaires, geocoded data travel/contacts history		Questionnaires, interviews		Questionnaire, policy analysis
Secondary data		Routine contact tracing and surveillance	Surveillance, geo-tracking data from devices/software	Procurement/orders/imports/manufacturing of equipment, records of entities, distribution of consumables (e.g., hospitals, schools)	Surveillance, other routinely collected information about use of facilities (e.g., school/university buildings)	Routine surveillance
Tools		E-data collection, interviews or mixed methods data collection, sensors, biomonitoring, molecular biomarkers of exposure and effect, advanced biostatistical models				
					Crowdsourcing, community/citizen science and social media	
				Open governmental data and infrastructure databases and/or policy documents		

Thank you :-)

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