References

Aktuell

Abaluck 2021

Jason Abaluck et al., *The Impact of Community Masking on COVID-19, A Cluster-Randomized Trial in Bangladesh.* unknown (2021), preprint, 1–94. .

A randomized-trial of community-level mask promotion in rural Bangladesh during COVID-19 shows that the intervention tripled mask usage and reduced symptomatic SARS-CoV-2 infections, demonstrating that promoting community mask-wearing can improve public health.

Background: Mask usage remains low across many parts of the world during the COVID19 pandemic, and strategies to increase mask-wearing remain untested. Our objectives were to identify strategies that can persistently increase mask-wearing and assess the impact of increasing mask-wearing on symptomatic SARS-CoV-2 infections.

Methods: We conducted a cluster-randomized trial of community-level mask promotion in rural Bangladesh from November 2020 to April 2021 (N=600 villages, N=342,126 adults). We cross-randomized mask promotion strategies at the village and household level, including cloth vs. surgical masks. All intervention arms received free masks, information on the importance of masking, role modeling by community leaders, and in-person reminders for 8 weeks. The control group did not receive any interventions. Neither participants nor field staff were blinded to intervention assignment. Outcomes included symptomatic SARS-CoV-2 seroprevalence (primary) and prevalence of proper mask-wearing, physical distancing, and symptoms consistent with COVID-19 (secondary). Mask-wearing and physical distancing were assessed through direct observation at least weekly at mosques, markets, the main entrance roads to villages, and tea stalls. At 5 and 9 weeks follow-up, we surveyed all reachable participants about COVID-related symptoms. Blood samples collected at 10-12 weeks of follow-up for symptomatic individuals were analyzed for SARS-CoV-2 IgG antibodies.

Results: There were 178,288 individuals in the intervention group and 163,838 individuals in the control group. The intervention increased proper mask-wearing from 13.3 % in control villages (N=806,547 observations) to 42.3 % in treatment villages (N=797,715 observations) (adjusted percentage point difference = 0.29 [0.27, 0.31]). This tripling of mask usage was sustained during the intervention period and two weeks after. Physical distancing increased from 24.1 % in control villages to 29.2 % in treatment villages (adjusted percentage point difference = 0.05 [0.04, 0.06]). After 5 months, the impact of the intervention faded, but mask-wearing remained 10 percentage points higher in the intervention group. The proportion of individuals with COVID-like symptoms was 7.62 % (N=13,273) in the intervention arm and 8.62 % (N=13,893) in the control arm. Blood samples were collected from N=10,952 consenting, symptomatic individuals. Adjusting for baseline covariates, the intervention reduced symptomatic seroprevalence by 9.3 % (adjusted prevalence ratio (aPR) = 0.91 [0.82, 1.00]; control prevalence 0.76 %; treatment prevalence 0.68 %). In villages randomized to surgical masks (n = 200), the relative reduction was 11.2 % overall (aPR = 0.89 [0.78, 1.00]) and 34.7 % among individuals 60+ (aPR = 0.65 [0.46, 0.85]). No adverse events were reported.

Conclusions: Our intervention demonstrates a scalable and effective method to promote mask adoption and reduce symptomatic SARS-CoV-2 infections.

Jason Abaluck, Laura H. Kwong, Ashley Styczynski, Ashraful Haque, Md. Alamgir Kabir, Ellen Bates-Jeffries, Emily Crawford, Jade Benjamin-Chung, Shabib Raihan, Shadman Rahman, Salim Benhachmi, Neeti Zaman, Peter J. Winch, Maqsud Hossain, Hasan Mahmud Reza, Abdullah All Jaber, Shawkee Gulshan Momen, Faika Laz Bani, Aura Rahman, Tahrima Saiha Huq, Stephen P. Luby & Ahmed Mushfiq Mobarak

BEN-DOR 2021

Miki Ben-Dor, Raphael Sirtoli & Ran Barkai, *Human oral microbiome cannot predict Pleistocene starch dietary level, and dietary glucose consumption is not essential for brain growth.* PNAS **118** (2021), e2110764118.

For argument's sake, we accept that AMY1 multicopy copy numbers indicate adaptation to starch consumption (but see ref. 3). In that case, however, one cannot ignore the (so far) uncontested conclusion that the appearance of more than two copies of AMY1 in the Homo genome postdates the split with Neandertals 765 to 550 ka.

BRAINARD 2021

Jeffrey Brainard, *Journals pull papers on Uyghurs.* science **373** (2021), 1291.

Two journals have retracted four papers by authors in China that used genetic data from Uyghurs and other Chinese minorities without evidence of proper informed consent. Human rights activists worry the data could be used for security purposes, adding to the intensive surveillance and detentions already imposed on the Uyghurs.

DOLGIN 2021

Elie Dolgin, *The tangled history of mRNA vaccines.* nature **597** (2021), 318–324.

Hundreds of scientists had worked on mRNA vaccines for decades before the coronavirus pandemic brought a breakthrough.

FISMAN 2021

David N. Fisman & Ashleigh R. Tuite, *Asymptomatic infection is the pandemic's dark matter.* PNAS **118** (2021), e2114054118. DOI:10.1073/pnas.2114054118.

PEGU 2021

Amarendra Pegu et al., *Durability of mRNA-1273 vaccine–induced antibodies against SARS-CoV-2 variants.* science **373** (2021), 1372–1377. DOI:10.1126/science.abj4176.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) mutations may diminish vaccineinduced protective immune responses, particularly as antibody titers wane over time. Here, we assess the effect of SARS-CoV-2 variants B.1.1.7 (Alpha), B.1.351 (Beta), P.1 (Gamma), B.1.429 (Epsilon), B.1.526 (Iota), and B.1.617.2 (Delta) on binding, neutralizing, and angiotensin-converting enzyme 2 (ACE2)– competing antibodies elicited by the messenger RNA (mRNA) vaccine mRNA-1273 over 7 months. Cross-reactive neutralizing responses were rare after a

single dose. At the peak of response to the second vaccine dose, all individuals had responses to all variants. Binding and functional antibodies against variants persisted in most subjects, albeit at low levels, for 6 months after the primary series of the mRNA-1273 vaccine. Across all assays, B.1.351 had the lowest antibody recognition. These data complement ongoing studies to inform the potential need for additional boost vaccinations.

Amarendra Pegu, Sarah E. O'Connell, Stephen D. Schmidt, Sijy O'Dell, Chloe A. Talana, Lilin Lai, Jim Albert, Evan Anderson, Hamilton Bennett, Kizzmekia S. Corbett, Britta Flach, Lisa Jackson, Brett Leav, Julie E. Ledgerwood, Catherine J. Luke, Mat Makowski, Martha C. Nason, Paul C. Roberts, Mario Roederer, Paulina A. Rebolledo, Christina A. Rostad, Nadine G. Rouphael, Wei Shi, Lingshu Wang, Alicia T. Widge, Eun Sung Yang, The mRNA- Study Group, John H. Beigel, Barney S. Graham, John R. Mascola, Mehul S. Suthar, Adrian B. McDermott & Nicole A. Doria-Rose

WARINNER 2021

Christina Warinner, Irina M. Velsko & James A. Fellows Yates, *Oral bacteria of Neanderthals and modern humans exhibit evidence of starch adaptation, Reply to Ben-Dor et al.* PNAS **118** (2021), e2112526118.

We understand that such findings are inconvenient formodels of early Homo carnivory, but we reject Ben-Dor et al.'s argument that such microbial evidence should be ignored.

Anthropologie

GROUCUTT 2021

Huw S. Groucutt et al., *Multiple hominin dispersals into Southwest Asia over the past 400,000 years.* nature **597** (2021), 376–380.

n597-0376-Supplement.pdf

Pleistocene hominin dispersals out of, and back into, Africa necessarily involved traversing the diverse and often challenging environments of Southwest Asia1–4. Archaeological and palaeontological records from the Levantine woodland zone document major biological and cultural shifts, such as alternating occupations by Homo sapiens and Neanderthals. However, Late Quaternary cultural, biological and environmental records from the vast arid zone that constitutes most of Southwest Asia remain scarce, limiting regional-scale insights into changes in hominin demography and behaviour1,2,5. Here we report a series of dated palaeolake sequences, associated with stone tool assemblages and vertebrate fossils, from the Khall Amayshan 4 and Jubbah basins in the Nefud Desert. These findings, including the oldest dated hominin occupations in Arabia, reveal at least five hominin expansions into the Arabian interior, coinciding with brief 'green' windows of reduced aridity approximately 400, 300, 200, 130–75 and 55 thousand years ago. Each occupation phase is characterized by a distinct form of material culture, indicating colonization by diverse hominin groups, and a lack of long-term Southwest Asian population continuity. Within a general pattern of African and Eurasian hominin groups being separated by Pleistocene Saharo-Arabian aridity, our findings reveal the tempo and character of climatically modulated windows for dispersal and admixture.

Huw S. Groucutt, Tom S. White, Eleanor M. L. Scerri, Eric Andrieux, Richard Clark-Wilson, Paul S. Breeze, Simon J. Armitage, Mathew Stewart, Nick Drake,

Julien Louys, Gilbert J. Price, Mathieu Duval, Ash Parton, Ian Candy, W. Christopher Carleton, Ceri Shipton, Richard P. Jennings, Muhammad Zahir, James Blinkhorn, Simon Blockley, Abdulaziz Al-Omari, Abdullah M. Alsharekh & Michael D. Petraglia

Bibel

LEVINE 2011

Amy-Jill Levine & Marc Zvi Brettler (Hrsg.), *The Jewish annotated New Testament, New Revised Standard Version Bible translation.* (Oxford ²2017).

Datierung

PRICE 2021

Michael Holton Price, Jose M. Capriles, Julie A. Hoggarth, R. Kyle Bocinsky, Claire E. Ebert & James Holland Jones, *End-to-end Bayesian analysis for summarizing sets of radiocarbon dates.* Journal of Archaeological Science **135** (2021), 105473, 1–12.

JAS135-a105473-Supplement.pdf

Archaeologists and demographers increasingly employ aggregations of published radiocarbon (14C) dates as demographic proxies summarizing changes in human activity in past societies. Presently, summed probability densities (SPDs) of calibrated radiocarbon dates are the dominant method of using 14C dates to reconstruct demographic trends. Unfortunately, SPDs are incapable of converging on the distribution that generated a set of radiocarbon measurements, even when the number of observations is large. To overcome this problem, we propose a more principled alternative that combines finite mixture models and end-to-end Bayesian inference. Numerical simulations and an assessment of the statistical identifiability of our method demonstrate that it correctly converges on the generating distribution for two important models, exponentials and finite Gaussian mixtures, at least if the same statistical model is used to fit the data as was used to generate the data. To further validate this approach, we apply it to a set of radiocarbon dates from the Maya city of Tikal. We show that an end-to-end approach reconstructs with high accuracy expert demographic reconstructions based on settlement patterns and ceramics, but with more precise time-resolution and characterization of uncertainty than has heretofore been possible. Future work should consider alternatives to finite Gaussian mixtures for fitting the generating distribution.

Keywords: Radiocarbon | Bayesian statistics | Equifinality | Tikal | Maya | Demography | Summed probabilities

Energie

MALLAPATY 2021

Smriti Mallapaty, *China prepares to test thorium-fuelled nuclear reactor.* nature **597** (2021), 311–312.

If China's experimental reactor is a success, it could lead to commercialization and help the nation meet its climate goals.

Kultur

Matsumae 2021

Hiromi Matsumae et al., *Exploring correlations in genetic and cultural variation across language families in northeast Asia.* Science Advances **7** (2021), eabd9223. DOI:10.1126/sciadv.abd9223.

Culture evolves in ways that are analogous to, but distinct from, genomes. Previous studies examined similarities between cultural variation and genetic variation (population history) at small scales within language families, but few studies have empirically investigated these parallels across language families using diverse cultural data. We report an analysis comparing culture and genomes from in and around northeast Asia spanning 11 language families. We extract and summarize the variation in language (grammar, phonology, lexicon), music (song structure, performance style), and genomes (genome-wide SNPs) and test for correlations. We find that grammatical structure correlates with population history (genetic history). Recent contact and shared descent fail to explain the signal, suggesting relationships that arose before the formation of current families. Our results suggest that grammar might be a cultural indicator of population history while also demonstrating differences among cultural and genetic relationships that highlight the complex nature of human history.

Hiromi Matsumae, Peter Ranacher, Patrick E. Savage, Damián E. Blasi, Thomas E. Currie, Kae Koganebuchi, Nao Nishida, Takehiro Sato, Hideyuki Tanabe, Atsushi Tajima, Steven Brown, Mark Stoneking, Kentaro K. Shimizu, Hiroki Oota & Balthasar Bickel

Mittelpaläolithikum

Çep 2021

Berrin Çep, Benjamin Schürch, Susanne C. Münzel & Jens Axel Frick, *Adaptive capacity and flexibility of the Neanderthals at Heidenschmiede (Swabian Jura) with regard to core reduction strategies.* PLoS ONE **16** (2021), e257041. DOI:10.1371/journal.pone.0257041.

pone16-e0257041-Supplement.pdf

The branched reduction system at the Heidenschmiede described here is hitherto exceptional for the Middle Paleolithic of the Swabian Jura. By means of refits and supporting objects, we are able to describe a superordinate reduction system that combines several individual reduction concepts, such as Levallois and blade production, within one volume. In the Middle Paleolithic of the Swabian Jura, blade technology has thus far played a rather minor role. On the one hand, it is possible to split a selected volume (nodule) into three parts, which are reduced separately according to individual concepts. On the other hand, it is also possible to reduce parts of a volume with one concept first and then with another. The hypothetical reduction system can be branched or linear, thus emphasizing the technological flexibility in core reduction, which requires a high degree of cognitive skills of threedimensional imagination.

Neolithikum

Rollefson 2021

Gary Rollefson, *The Crowded Desert, Late Neolithic Megasites in the Black Desert of Jordan.* In: Claudia Bührig, Margarete van Ess, Iris Gerlach, Arnulf Hausleiter & Bernd Müller-Neuhof (Hrsg.), *Klänge der Archäologie, Festschrift für Ricardo Eichmann.* (Wiesbaden 2021), 343–350.

In the 9th millennium BP the Black Desert megasites of Wisad Pools and Wach al-Qattafi emerged as central places for an industry that built kite hunting traps for the mass slaughter of gazelle to feed a lucrative interregional trade in gazelle hides. Climatic amelioration in the mid-ninth millennium permitted larger populations to live seasonally in large agglomerations, and these population clusters provided the labor necessary to expand the labor-intensive construction of kites across the Harrat al-Sham in the panhandle of Jordan.

Keywords: Late Neolithic | kites | gazelle slaughter | Wadi al-Qattafi | Wisad Pools

Politik

Dai 2021

Hengchen Dai & Silvia Saccardo et al., *Behavioural nudges increase COVID-19 vaccinations.* nature **597** (2021), 404–409.

n597-0404-Supplement1.pdf, n597-0404-Supplement2.mp4

Enhancing vaccine uptake is a critical public health challenge1. Overcoming vaccine hesitancy2,3 and failure to follow through on vaccination intentions3 requires effective communication strategies3,4. Here we present two sequential randomized controlled trials to test the effect of behavioural interventions on the uptake of COVID-19 vaccines. We designed text-based reminders that make vaccination salient and easy, and delivered them to participants drawn from a healthcare system one day (first randomized controlled trial) (n = 93,354 participants; clinicaltrials number NCT04800965) and eight days (second randomized controlled trial) (n = 67,092 individuals; clinicaltrials number NCT04801524) after they received a notification of vaccine eligibility. The first reminder boosted appointment and vaccination rates within the healthcare system by 6.07 (84 %) and 3.57 (26 %) percentage points, respectively; the second reminder increased those outcomes by 1.65 and 1.06 percentage points, respectively. The first reminder had a greater effect when it was designed to make participants feel ownership of the vaccine dose. However, we found no evidence that combining the first reminder with a video-based information intervention designed to address vaccine hesitancy heightened its effect. We performed online studies (n = 3,181 participants) to examine vaccination intentions, which revealed patterns that diverged from those of the first randomized controlled trial; this underscores the importance of pilot-testing interventions in the field. Our findings inform the design of behavioural nudges for promoting health decisions5, and highlight the value of making vaccination easy and inducing feelings of ownership over vaccines.

Hengchen Dai, Silvia Saccardo, Maria A. Han, Lily Roh, Naveen Raja, Sitaram Vangala, Hardikkumar Modi, Shital Pandya, Michael Sloyan & Daniel M. Croymans