Article:
Dorison, CA, Lerner, JS, Heller, BH et al. (475 more authors) (2022) In COVID-19 health messaging, loss framing increases anxiety with little-to-no concomitant benefits: experimental evidence from 84 countries. Affective Science, 3 (3). pp. 577-602. ISSN 2662-205X

https://doi.org/10.1007/s42761-022-00128-3

In COVID-19 health messaging, loss framing increases anxiety with little-to-no concomitant benefits: Experimental evidence from 84 countries.

* corresponding author email: charles.dorison@kellogg.northwestern.edu

Author	Institution and Affiliation	Email
Charles A. Dorison	Northwestern University, Kellogg School of Management, Evanston, IL, United States	charles.dorison@kellogg.northwestern.edu
Jennifer S. Lerner	Harvard University, Harvard Kennedy School and Department of Psychology, Cambridge, MA, United States	jennifer_lerner@harvard.edu
Blake H. Heller	Harvard University, Harvard Kennedy School, Cambridge, MA, United States	bheller@g.harvard.edu
Alexander J. Rothman	University of Minnesota, Department of Psychology, Minneapolis, MN, United States	rothm001@umn.edu
Ichiro I. Kawachi	Harvard University, Harvard T.H. Chan School of Public Health, Boston, MA, United States	ikawachi@hsph.harvard.edu
Ke Wang	Harvard University, Harvard Kennedy School, Cambridge, United States	ke_wang@g.harvard.edu
Vaughan W. Rees	Harvard University, Harvard T.H. Chan School of Public Health, Boston, MA, United States	vrees@hsph.havard.edu
Brian P. Gill	Mathematica, Cambridge, MA, United States	bgill@mathematica.org
Nancy Gibbs	Harvard University, Harvard Kennedy School, Cambridge, United States	nancy_gibbs@hks.harvard.edu
Charles R. Ebersole	University of Virginia, Charlottesville, United States	cebersole@virginia.edu
Zahir Vally	United Arab Emirates University, Al Ain, United Arab Emirates	zahir.vally@uaeu.ac.ae
	Wolfson College, University of Oxford, Oxford, United Kingdom	

Zuzanna Tajchman	University of Minnesota, Twin Cities, Department of Psychology, Minneapolis, United States	ztajchma@umn.edu
Andras N. Zsido	Institute of Psychology, University of Pécs, Pécs, Hungary	zsido.andras@pte.hu
Mija Zrimsek	University of Ljubljana, Department of Translation Studies, Faculty of Arts, Ljubljana, Slovenia	zrimsekm@gmail.com
Zhang Chen	Ghent University, Department of Experimental Psychology, Ghent, Belgium	zhang.chen@ugent.be
Ignazio Ziano	Grenoble Ecole de Management, Grenoble, France	ziano.ignazio@gmail.com
Zoi Gialitaki	Independent Researcher	z.gialitaki@gmail.com
Chris D Ceary	Indiana University of Pennsylvania, Indiana, United States	cceary@gmail.com
Yuna Jang	Independent Researcher	yunajang92@gmail.com
Yijun Lin	University of Florida, Department of Psychology, Gainesville, United States	yijun.lin@ufl.edu
Yoshihiko Kunisato	Senshu University, Department of Psychology, Kawasaki, Japan	ykunisato@psy.senshu-u.ac.jp
Yuki Yamada	Kyushu University, Faculty of Arts and Science, Fukuoka, Japan	yamadayuk@gmail.com
Qinyu Xiao	University of Hong Kong, Department of Psychology, Hong Kong SAR, China	xqy1020@connect.hku.hk
Xiaoming Jiang	Shanghai International Studies University, Institute of Linguistics, Shanghai, China	xiaoming.jiang@shisu.edu.cn
Xinkai Du	University of Amsterdam, Amsterdam, Netherlands	xinkai.du@student.uva.nl
Elvin Yao	Claremont Graduate University, Claremont, United States	xiaohui.yao@cgu.edu

William S. Ryan	University of Toronto, St George, Canada	ws.ryan@utoronto.ca
John Paul Wilson	Montclair State University, Montclair, United States	johnpaulw@gmail.com
Wilson Cyrus-Lai	INSEAD, Singapore	wilson-cyrus.lai@insead.edu
William Jimenez-Leal	Universidad de los Andes, Department of Psychology, Bogotá, Colombia	w.jimenezleal@uniandes.edu.co
Wilbert Law	The Education University of Hong Kong, Department of Psychology, Hong Kong, SAR China	wlaw@eduhk.hk
Wenceslao Unanue	Universidad Adolfo Ibáñez, School of Business, Santiago, Chile	wenceslao.unanue@uai.cl
W. Matthew Collins	Nova Southeastern University, Department of Psychology and Neuroscience, Fort Lauderdale, United States	wc292@nova.edu
Karley L. Richard	Indiana University of Pennsylvania, Indiana, United States	vymbc@iup.edu
Marek Vranka	Charles University, Prague, Czechia	vranka.marek@gmail.com
Vladislav Ankushev	HSE University, Moscow, Russia	vladislavankushev@yandex.ru
Vidar Schei	NHH Norwegian School of Economics, Department of Strategy and Management, Bergen, Norway	vidar.schei@nhh.no
Chloe DePaola	Indiana University of Pennsylvania, Indiana, United States	vhvp@iup.edu
Veronika Lerche	Heidelberg University, Heidelberg, Germany	veronika.lerche@psychologie.uni-heidelberg.de
Vanja Kovic	University of Belgrade, Laboratory for Neurocognition and Applied Cognition, Faculty of Philosophy, Belgrade, Serbia	vanja.kovic@f.bg.ac.rs
Valerija Križanić	Josip Juraj Strossmayer University of Osijek, Department of Psychology,	vkrizanic@ffos.hr

	Faculty of Humanities and Social Sciences, Osijek, Croatia	
Veselina Hristova Kadreva	New Bulgarian University, Department of Cognitive Science and Psychology, Sofia, Bulgaria	v.kadreva@gmail.com
Vera Cubela Adoric	University of Zadar, Department of Psychology, Zadar, Croatia	vcubela@unizd.hr
Ulrich S. Tran	University of Vienna, Department of Cognition, Emotion, and Methods in Psychology, Faculty of Psychology, Vienna, Austria	ulrich.tran@univie.ac.at
Siu Kit Yeung	University of Hong Kong, Hong Kong, SAR China	u3517520@connect.hku.hk
Widad Hassan	University of East London, Department of Psychology, Dubai, United Arab Emirates	u1944146@uel.ac.uk
Ralph Houston	Independent Researcher	translate@rjfhouston.com
Michael A. Machin	University of Southern Queensland, Toowoomba, Australia	tony.machin@usq.edu.au
Tiago J. S. Lima	University of Brasília, Department of Social and Work Psychology, Brasilia, Brazil	tiago.lima@unb.br
Thomas Ostermann	Witten/Herdecke University, Department of Psychology and Psychotherapy, Witten, Germany	thomas.ostermann@uni-wh.de
Thomas Frizzo	Université de Lorraine, Université de Strasbourg, CNRS, BETA, Nancy, France	thomas.frizzo@gmail.com
Therese E Sverdrup	NHH Norwegian School of Economics, Department of Strategy and Management, Bergen, Norway	therese.sverdrup@nhh.no
Thea House	Macquarie University, Sydney, Australia University of Bristol, Bristol, United Kingdom	thea.house@students.mq.edu.au

Tripat Gill	Wilfrid Laurier University, Lazaridis School of Business and Economics, Waterloo, Canada	tgill@wlu.ca
Maksim Fedotov	Russian Academy of Sciences, Institute for Linguistic Studies, Saint Petersburg, Russia	tequila.lime@gmail.com
Tamar Paltrow	Independent Researcher	tepaltrow@aol.com
Teodor Jernsäther	Stockholm University, Department of Psychology, Stockholm, Sweden	teodor.jernsather@psychology.su.se
Tasnim Rahman	University of Dhaka, Dhaka, Bangladesh	tasnimrahman621@gmail.com
Tanya Machin	University of Southern Queensland, Toowoomba, Australia	Tanya.Machin@usq.edu.au
Maria Koptjevskaja-Tamm	Stockholm University, Department of Linguistics, Stockholm, Sweden	tamm@ling.su.se
Thomas J. Hostler	Manchester Metropolitan University, Department of Psychology, Manchester, United Kingdom	t.hostler@mmu.ac.uk
Tatsunori Ishii	Japan Women's University, Faculty of Integrated Arts and Social Sciences, Tokyo, Japan	t.ishii1108@gmail.com
Barnabas Szaszi	ELTE Eötvös Loránd University, Institute of Psychology, Budapest, Hungary	szaszi.barnabas@ppk.elte.hu
Sylwia Adamus	Jagiellonian University, Institute of Psychology, Krakow, Poland	sylwiadamus@gmail.com
Lilian Suter	ZHAW Zurich University of Applied Sciences, School of Applied Psychology, Winterthur, Switzerland	lilian.suter@zhaw.ch
Suparpit M. von Bormann	Suranaree University of Technology, Nakhon Ratchasima, Thailand	suparpit@gmail.com
Sumaiya Habib	University of Dhaka, Department of Clinical Psychology, Dhaka, Bangladesh	sumaiyahabib14@gmail.com

Anna Studzinska	Icam Toulouse, Department of Humanities, Toulouse, France	studzinna@gmail.com
Dragana Stojanovska	PSA Psihesko, Skopje, North Macedonia	stojanovskadragana.ds@gmail.com
Steve M. J. Janssen	University of Nottingham Malaysia School of Psychology, Semenyih, Malaysia	steve.janssen@nottingham.edu.my
Stefan Stieger	Karl Landsteiner University of Health Sciences, Department of Psychology and Psychodynamics, Krems an der Donau, Austria	stefan.stieger@kl.ac.at
Stefan E. Schulenberg	University of Mississippi, Department of Psychology, Oxford, Mississippi, United States University of Mississippi, Clinical-Disaster Research Center, Oxford, Mississippi, United States	sschulen@olemiss.edu
Srinivasan Tatachari	T A Pai Management Institute, Manipal Academy of Higher Education, Manipal, India	srini.tata@gmail.com
Soufian Azouaghe	Mohammed V University in Rabat, Department of Psychology, Rabat, Morocco Université Grenoble Alpes, LIP/PC2S, Grenoble, France	s.azouaghe@um5r.ac.ma
Piotr Sorokowski	University of Wroclaw, Institute of Psychology, Wroclaw, Poland	sorokowskipiotr@yahoo.co.uk
Agnieszka Sorokowska	University of Wroclaw, Institute of Psychology, Wroclaw, Poland	Sorokowska@gmail.com
Xin Song	University of Minnesota, Twin Cities, Department of Psychology, Minneapolis, United States	songx953@umn.edu

Sofie Morbée	Department of Developmental, Personality and Social Psychology, Ghent University	Sofie.Morbee@UGent.be
Savannah C. Lewis	Ashland University, Ashland, United States	slewis5920@gmail.com
Sladjana Sinkolova	PSA Psihesko, Skopje, North Macedonia	sinkolova.s@gmail.com
Dmitry Grigoryev	National Research University Higher School of Economics, Moscow, Russia	dgrigoryev@hse.ru
Shira Meir Drexler	Department of Neurology, Mauritius Hospital Meerbusch, Meerbusch, Germany	shira.meir@gmail.com
Shimrit Daches	Bar-Ilan University, Department of Psychology, Ramat Gan, Israel	shimrit.daches@biu.ac.il
Shelby L. Levine	McGill University, Montreal Canada	shelby.levine@mail.mcgill.ca
Shawn N. Geniole	University of the Fraser Valley, Department of Psychology, Abbotsford, Canada	shawngeniole@gmail.com
Shahunur Akter	University of Dhaka, Dhaka, Bangladesh	Shahinoorakter27@gmail.com
Selena Vračar	University of Belgrade, Department of Psychology, Belgrade, Serbia	selenavracar1410@gmail.com
Sébastien Massoni	Université de Lorraine, Université de Strasbourg, CNRS, BETA, Nancy, France	sebastien.massoni@gmail.com
Sebastiano Costa	Università degli Studi della Campania Luigi Vanvitelli, Caserta, Italy	sebastiano.costa@unicampania.it
Saša Zorjan	University of Maribor, Department of Psychology, Maribor, Slovenia	sasa.zorjan1@um.si
Eylül Sarıoğuz	University of Başkent, Institute of Social Sciences, Department of Psychology , Ankara, Turkey	sarioguzeylul@gmail.com

Sara Morales Izquierdo	University of Warwick, Coventry United Kingdom	sara.morales-izquierdo@warwick.ac.uk
Sarah Suzette Tshonda	Independent Researcher	sarahsuzette91@gmail.com
Sara G Alves	University of Porto, Center for Psychology at University of Porto, Porto, Portugal	up201304933@edu.fpce.up.pt
Sara Pöntinen	Åbo Akademi University, Faculty of Arts, Psychology, and Theology, Turku, Finland	sara.pontinen@gmail.com
Sara Álvarez Solas	Universidad Regional Amazónica Ikiam, Grupo de investigación en Biogeografía y Ecología Espacial (BioGeoE2), Tena, Ecuador	sara.alvarez.solas@gmail.com
Santiago Ordoñez-Riaño	University of Guadalajara, Guadalajara, Colombia	santiagoordz@gmail.com
Sanja Batić Očovaj	Union University, Faculty of Legal and Business Studies Dr Lazar Vrkatic, Department of Psychology, Novi Sad, Serbia	sanja.batic@gmail.com
Sandersan Onie	Black Dog Institute, Sydney, Australia University of New South Wales, School of Psychology, Sydney, Australia Emotional Health for All Foundation, Australia	sandy.onie@gmail.com
Samuel Lins	University of Porto, Center for Psychology at University of Porto, Porto, Portugal	samuellins@fpce.up.pt
Theresa Biberauer	University of Cambridge, Cambridge, United Kingdom Stellenbosch University, Stellenbosch, South Africa	samtb23@gmail.com

	University of the Western Cape, Cape Town, South Africa	
Sami Çoksan	Erzurum Technical University, Department of Psychology, Erzurum, Turkey	sami.coksan@erzurum.edu.tr
Sakda Khumkom	Suranaree University of Technology, Nakhon Ratchasima, Thailand	sakdakh@sut.ac.th
Asli Sacakli	Independent Researcher	sacakliasli@gmail.com
Susana Ruiz-Fernández	FOM University of Applied Sciences, Essen, Germany	susana.ruiz-fernandez@psychology-research.de
Sandra J. Geiger	University of Amsterdam, Department of Psychology, Faculty of Social and Behavioural Sciences, Amsterdam, Netherlands	sandra.geiger@univie.ac.at
Saeideh FatahModares	Urmia University, Department of Sport Management, Faculty of Physical Education and Sport Science, Urmia, Iran	s.fmodares@yahoo.com
Radoslaw B. Walczak	University of Opole, Institute of Psychology, Opole, Poland	rwalczak@uni.opole.pl
Ruben Betlehem	Josip Juraj Strossmayer University of Osijek, Faculty of Humanities and Social Sciences, Department of Psychology, Osijek, Croatia	rbetlehem@ffos.hr
Roosevelt Vilar	Universidade Cruzeiro do Sul, São Paulo, Brazil	roosevelt.vilar@gmail.com
Roos Doekemeijer	Ghent University, Ghent, Belgium	roos@doekemeijer.nl
Rodrigo Cárcamo	University of Magallanes, Department of Psychology, Punta Arenas, Chile	rodrigo.carcamo@umag.cl
Robert M Ross	Macquarie University, Department of Psychology, Sydney, Australia	robross46@gmail.com

Randy McCarthy	Northern Illinois University Department of Psychology, DeKalb, United States	rmccarthy3@niu.edu
Tonia Ballantyne	Indiana University of Pennsylvania, Indiana, United States	rjxx@iup.edu
Erin C. Westgate	University of Florida, Department of Psychology, Gainesville, United States	erinwestgate@ufl.edu
Rafael Gargurevich	Pontifical Catholic University of Peru, Lima, Peru	rgargurevich@pucp.pe
Reza Afhami	Tarbiat Modares University, Department of Art Studies, Tehran, Iran	Afhami@modares.ac.ir
Dongning Ren	Tilburg University, Department of Social Psychology, Tilburg, Netherlands	d.ren@uvt.nl
Renan P. Monteiro	Federal University of Mato Grosso, Department of Psychology, Cuiabá, Brazil	renanpmonteiro@gmail.com
Ulf-Dietrich Reips	University of Konstanz, Department of Psychology, Konstanz, Switzerland	reips@uni-konstanz.de
Niv Reggev	Ben Gurion University, Department of Psychology and Zlotowski Center for Neuroscience, Beersheba, Israel	reggevn@bgu.ac.il
Robert J Calin-Jageman	Dominican University, Department of Psychology, River Forest, United States	rcalinjageman@dom.edu
Razieh Pourafshari	University of Tehran, Department of Psychology, Faculty of Psychology and Education, Tehran, Iran	razieh.pourafshari@gmail.com
Raquel London	Ghent University, Ghent, Belgium	raquellondon@gmail.com
Raquel Oliveira	Iscte-University Institute of Lisbon, CIS-IUL, Lisbon, Portugal	rsaoa@iscte-iul.pt

	Intelligent Agents and Synthetic Characters Group (GAIPS), INESC-ID, Lisbon, Portugal	
Mina Nedelcheva-Datsova	Sofia University St. Kliment Ohridski, Department of General, Experimental, Developmental, and Health Psychology, Sofia, Bulgaria	raiskopruskalo@gmail.com
Rima-Maria Rahal	Tilburg University, Department of Social Psychology, Tilburg, Netherlands	r.m.rahal@tilburguniversity.edu
Rafael R Ribeiro	ISCTE - Instituto Universitário de Lisboa, CIS-IUL, Lisbon, Portugal	rafael_ribeiro@iscte-iul.pt
Theda Radtke	University of Wuppertal, Department of Psychology, Wuppertal, Germany	Radtke@uni-wuppertal.de
Rachel Searston	The University of Adelaide, Adelaide, Australia	rachel.searston@adelaide.edu.au
Rachadaporn Jai-ai	Suranaree University of Technology, Nakhon Ratchasima, Thailand	rachadaporn@sut.ac.th
Redeate Habte	Jacobs University Bremen, Bremen, Germany	redhabte@gmail.com
Przemysław Zdybek	University of Opole, Institute of Psychology, Opole, Poland	pzdybek@uni.opole.pl
Sau-Chin Chen	Tzu-Chi University, Department of Human Development and Psychology, Hualien, Taiwan	pmsp96@gmail.com
Piyaorn Wajanatinapart	Suranaree University of Technology, Nakhon Ratchasima, Thailand	piyaorn@g.sut.ac.th
Princess Lovella G. Maturan	University of the Philippines Diliman, Department of Psychology, Quezon City, Philippines	pgmaturan@up.edu.ph
Jennifer T Perillo	Indiana University of Pennsylvania, Department of Psychology, Indiana, United States	jperillo@iup.edu

Peder Mortvedt Isager	Eindhoven University of Technology, Department of Industrial Engineering and Innovation Sciences, Eindhoven, Netherlands	pederisager@gmail.com
Pavol Kačmár	Pavol Jozef Šafárik University in Košice, Department of Psychology, Faculty of Arts, Košice, Slovakia	pavol.kacmar@upjs.sk
Paulo Manuel Macapagal	Arellano University, School of Psychology, Manila, Philippines	paulo.macapagal@arellano.edu.ph
Michael R. Maniaci	Department of Psychology, Florida Atlantic University	mmaniaci@fau.edu
Paulina Szwed	Jagiellonian University, Krakow, Poland	paulina.szwed@uj.edu.pl
Paul H. P. Hanel	University of Essex, Essex, United Kingdom	p.hanel@essex.ac.uk
Paul A G Forbes	University of Vienna, Social, Cognitive and Affective Neuroscience Unit, Department of Cognition, Emotion, and Methods in Psychology, Faculty of Psychology, Vienna, Austria	paul.forbes@univie.ac.at
Patrícia Arriaga	Iscte - Instituto Universitário de Lisboa, CIS-IUL, Lisbon, Portugal	patricia.arriaga@iscte-iul.pt
Bastien Paris	Université Grenoble Alpes, Grenoble, France	paris.bastien@hotmail.com
Neha Parashar	Sampurna Montfort College, Bangalore, India	parashar3@gmail.com
Konstantinos Papachristopoulos	Concordia University, Montreal, Canada	papachristopouloskostas@gmail.com
Konstantinos Papachristopoulos	Athens University of Economics and Business, Athens, Greece	papachristopouloskostas@gmail.com
Pablo Sebastián Correa	Universidad Nacional de Córdoba, Instituto de Investigaciones Psicológicas (IIPsi) Consejo Nacional	pablocorrea@unc.edu.ar

	de Investigaciones Científicas y Técnicas, Córdoba, Argentina	
Ondřej Kácha	University of Cambridge, Department of Psychology, Cambridge, United Kingdom	oek22@cantab.ac.uk
Márcia Bernardo	Universidade do Porto, Faculdade de Psicologia e Ciências da Educação, Porto, Portugal	oliviabernardo95@gmail.com
Olatz Campos	University of Deusto, Bilbao, Spain	olatzcampos4@gmail.com
Olalla Niño Bravo	Independent Researcher	olallanino3@gmail.com
Oscar J Galindo-Caballero	Universidad de los Andes, Department of Psychology, Bogotá, Colombia Universidad Manuela Beltran, Faculty of Education, Human and Social Sciences, Bogotá, Colombia.	oj.galindo10@uniandes.edu.co
Chisom Esther Ogbonnaya	Alex Ekwueme Federal University, Ndufu-Alike, Nigeria	ogbonnaya.chisom@yahoo.com
Olga Bialobrzeska	SWPS University of Social Sciences and Humanities, Warsaw, Poland	obialobrzeska@swps.edu.pl
Natalia Kiselnikova	Psychological Institute of Russian Academy of Education, Moscow, Russia	nv_psy@mail.ru
Nicolle Simonovic	Kent State University, Department of Psychological Sciences, Kent, United States	nsimonov@kent.edu
Noga Cohen	University of Haifa, Department of Special Education and The Edmond J. Safra Brain Research Center for the Study of Learning Disabilities, Haifa, Israel	noga.cohen@edu.haifa.ac.il
Nora L. Nock	Case Western Reserve University, Department of Population and Quantitative Health Sciences, School of Medicine, Cleveland, United States	nln@case.edu

Alejandrina Hernandez	Universidad Nacional Autonoma de Mexico, Mexico City, Mexico	nina.hp@hotmail.com
Cecilie Thogersen-Ntoumani	University of Southern Denmark, Department of Sports Sciences and Clinical Biomechanics, Odense, Denmark	cthogersen@health.sdu.dk
Nikos Ntoumanis	University of Southern Denmark, Department of Sports Sciences and Clinical Biomechanics, Odense, Denmark	nntoumanis@health.sdu.dk
Niklas Johannes	University of Oxford, Oxford Internet Institute, Oxford, United Kingdom	niklas.johannes@oii.ox.ac.uk
Nihan Albayrak-Aydemir	Open University, Milton Keynes, United Kingdom & London School of Economics and Political Science, London, United Kingdom	nihan.albayrak-aydemir@open.ac.uk
Nicolas Say	Prague University of Economics and Business, Prague, Czechia	sayn00@vse.cz
Andreas B. Neubauer	DIPF | Leibniz Institute for Research and Information in Education, Germany	neubauer.andreas@dipf.de
Neil I. Martin	University of Southern Queensland, Toowoomba, Australia	neil.martin@usq.edu.au
Nathan Torunsky	University of Minnesota,Twin Cities, Department of Psychology, Minneapolis, United States	torun005@umn.edu
Natasha van Antwerpen	University of Adelaide, Adelaide, Australia	vananata10@gmail.com
Natalia Van Doren	The Pennsylvania State University, Department of Psychology, State College, United States	nataliavandoren@psu.edu
Naoyuki Sunami	University of Delaware, Newark, United States	nsunami@udel.edu

Nikolay R. Rachev	Sofia University St. Kliment Ohridski, Department of General, Experimental, Developmental, and Health Psychology, Sofia, Bulgaria	nrrachev@phls.uni-sofia.bg
Nadyanna M Majeed	Singapore Management University, School of Social Sciences, Singapore	nadyannam.2020@msps.smu.edu.sg
Nadya-Daniela Schmidt	University of Hildesheim, Institute of Psychology, Hildesheim, Germany	schmidtn@uni-hildesheim.de
Khaoula Nadif	Independent Researcher	nadifkhaoula@gmail.com
Nadia S Corral-Frías	Universidad de Sonora, Sonora, México	nadia.corral@unison.mx
Nihal Ouherrou	Paul Valery Montpellier 3 University, Lhumain Laboratory, Montpellier, France	nihal.ouherrou@umontpellier.fr
Nida Abbas	Jacobs University Bremen, Bremen, Germany	adinxxabbas@gmail.com
Myrto Pantazi	University of Oxford, Oxford Internet Institute, Oxford, United Kingdom	myrto.pantazi@oii.ox.ac.uk
Marc Y Lucas	Universidad de Sonora, Department of Psychology, Sonora, Mexico	mylucas@email.arizona.edu
Martin R. Vasilev	Bournemouth University, Department of Psychology, Poole, United Kingdom	mvasilev@bournemouth.ac.uk
María Victoria Ortiz	Instituto de Investigaciones Psicológicas (IIPsi) - CONICET – UNC Universidad Nacional de Córdoba, Facultad de Psicología, Cordoba, Argentina	mv.ortiz@unc.edu.ar
Muhammad Mussaffa Butt	Government College University, Lahore, Pakistan	mussaffa@gmail.com
Murathan Kurfalı	Stockholm University, Linguistics Department, Stockholm, Sweden	murathan.kurfali@ling.su.se

Muhib Kabir	Bangladesh Clinical Psychology Society, Dhaka, Bangladesh	Muhib_cu@yahoo.com
Rafał Muda	Maria Curie-Sklodowska University, Faculty of Economics, Lublin, Poland	muda.research@gmail.com
María del Carmen MC Tejada Rivera	University of Desarrollo, Concepción, Chile	mtejadar@udd.cl
Miroslav Sirota	University of Essex, Department of Psychology, Colchester, United Kingdom	msirota@essex.ac.uk
Martin Seehuus	Middlebury College, Department of Psychology, Middlebury, United States University of Vermont, Vermont Psychological Services, Burlington, United States	mseehuus@middlebury.edu
Michal Parzuchowski	SWPS University of Social Sciences and Humanities in Sopot, Center for Research on Cognition and Behavior, Sopot, Poland	mparzuchowski@swps.edu.pl
Mónica Toro	Universidad Del Desarrollo, Centro de Apego y Regulación Emocional, Facultad de Psicología, Concepción, Chile	motorov@udd.cl
Monika Hricova	Pavol Jozef Šafárik University in Košice, Department of Psychology, Faculty of Arts, Košice, Slovakia	monika.hricova@upjs.sk
Mónica Alarcón Maldonado	Independent Researcher	
Panagiotis Rentzelas	School of Social Sciences, Birmingham City University	Panagiotis.Rentzelas@bcu.ac.uk
Maarten Vansteenkiste	Department of Developmental, Personality and Social Psychology, Ghent University	Maarten.Vansteenkiste@ugent.be
Molly A. Metz	University of Toronto, Toronto, Canada	molly.metz@utoronto.ca

Magdalena Marszalek	SWPS University of Social Sciences and Humanities, Warsaw, Poland	mmarszalek4@st.swps.edu.pl
Maria Karekla	University of Cyprus, Nicosia, Cyprus	mkarekla@ucy.ac.cy
Giovanna Mioni	University of Padova, Department of General Psychology, Padua, Italy	giovanna.mioni@unipd.it
Minke Jasmijn Bosma	University of Amsterdam, Department of Psychology, Amsterdam, Netherlands	minke.bosma@student.uva.nl
Minja Westerlund	Åbo Akademi University, Faculty of Arts, Psychology, and Theology, Turku, Finland	minja.westerlund@abo.fi
Milica Vdovic	Singidunum University, Faculty of Media and Communications, Department of Psychology, Belgrade, Serbia	milica.vdovic@fmk.edu.rs
Michal Bialek	University of Wroclaw, Institute of Psychology, Wroclaw, Poland	michal.bialek3@uwr.edu.pl
Miguel A. Silan	University of the Philippines Diliman, Quezon City, Philippines	MiguelSilan@gmail.com
Michele Anne	University of Nottingham Malaysia, School of Psychology, Semenyih, Malaysia	michele.anne@dmu.ac.uk
Michal Misiak	University of Wroclaw, IDN Being Human Lab, Wroclaw, Poland University of Oxford, School of Anthropology & Museum Ethnography, Oxford, United Kingdom	michal.misiak@uwr.edu.pl
Maria C. Gugliandolo	University of Messina, Messina, Italy	mgugliandolo@unime.it
Maurice Grinberg	New Bulgarian University, Department of Cognitive Science and Psychology, Research Center for Cognitive Science, Sofia, Bulgaria	mgrinberg@nbu.bg

Mariagrazia Capizzi	Université Paul Valéry Montpellier 3, Montpellier, France	mgcapizzi@hotmail.com
Mauricio F. Espinoza Barría	Universidad del Desarrollo, Centre of Attachment and Emotional Regulation, Faculty of Psychology, Santiago, Chile	mespinozab@udd.cl
Merve A. Kurfali	Bilkent University, Department of Political Science, Ankara, Turkey	merve.akdemir@bilkent.edu.tr
Michael C Mensink	University of Wisconsin-Stout, Department of Psychology, Menomonie, United States	mensinkm@uwstout.edu
Mikayel Harutyunyan	Charles University, Institute of Economic Studies, Prague, Czechia	75686400@fsv.cuni.cz
Meetu Khosla	University of Delhi, Psychology Department, DRC, Delhi, India	meetukhosla@yahoo.co.in
Megan R. Dunn	Illinois Institute of Technology, Chicago, USA	mdunn2@hawk.iit.edu
Max Korbmacher	Western Norway University of Applied Sciences, Bergen, Norway	max.korbmacher@gmail.com
Matúš Adamkovič	University of Presov, Institute of Psychology, Faculty of Arts, Presov, Slovakia CSPS Slovak Academy of Sciences, Institute of Social Sciences, Slovakia	matho.adamkovic@gmail.com
Matheus Fernando Felix Ribeiro	University of Brasilia, Institute of Psychology, Brasilia, Brazil	matheusfelix.psi@gmail.com
Maria Terskova	National Research University Higher School of Economics, Moscow, Russia	materskova@gmail.com
Matej Hruška	Comenius University in Bratislava, Institute of European Studies and International Relations, Faculty of Social and Economic Sciences, Bratislava, Slovakia	matej.hruska@fses.uniba.sk

Marcel Martončik	University of Presov, Faculty of Arts, Presov, Slovakia; Institute of Social Sciences, CSPS SAS, Slovakia	martoncik@protonmail.ch
Martine Jansen	Fontys University of Applied Sciences, Eindhoven, Netherlands	martine.jansen@gmail.com
Martin Voracek	University of Vienna, Department of Cognition, Emotion, and Methods in Psychology, Faculty of Psychology, Vienna, Austria	martin.voracek@univie.ac.at
Martin Čadek	Leeds Beckett University, Carnegie School of Sport, Leeds, United Kingdom	marti.cadek@gmail.com
Martha Frías-Armenta	Universidad de Sonora, Sonora, México	martha.frias@unison.mx
Marta Kowal	University of Wroclaw, Institute of Psychology, Wroclaw, Poland	marta7kowal@gmail.com
Marta Topor	University of Surrey, School of Psychology, Guildford, United Kingdom	m.topor@surrey.ac.uk
Marta Roczniewska	SWPS University of Social Sciences and Humanities in Sopot, Department of Psychology, Sopot, Poland Karolinska Institutet, Department of Learning, Informatics, Management, and Ethics, Stockholm, Sweden	marta.roczniewska@swps.edu.pl
Marlies Oosterlinck	Independent Researcher	marliesoosterlinck@gmail.com
Markéta Braun Kohlová	Charles University, Environment Centre, Czechia	marketa.braun.kohlova@czp.cuni.cz
Mariola Paruzel-Czachura	University of Silesia in Katowice, Institute of Psychology, Poland & Universidad Complutense Madrid, Facultad de Psicología, Spain	mariola.paruzel-czachura@us.edu.pl
Marina Sabristov	Independent Researcher	marina.sabristov@gmail.com
Marina Romanova	HSE University, Moscow, Russia	marina.romanova.msk@gmail.com

Marietta Papadatou-Pastou	National and Kapodistrian University of Athens, Athens, Greece	marietta.papadatou-pastou@seh.oxon.org
Maria Louise Lund	University of Oslo, Oslo, Norway	marialouiselund@hotmail.com
Maria Antoniadi	University of Cyprus, Nicosia, Cyprus	maria.antoniadi867@gmail.com
Maria Elena Magrin	University of Milano – Bicocca, Italy	mariaelena.magrin@unimib.it
Marc V Jones	Manchester Metropolitan University, Department of Psychology, Manchester, United Kingdom	marc.jones@mmu.ac.uk
Manuel S Ortiz	Universidad de La Frontera, Departamento de Psicología. Laboratorio de Estrés y Salud, Temuco, Chile	manuel.ortiz@ufrontera.cl
Mathi Manavalan	University of Minnesota, Twin Cities, Department of Psychology, Minneapolis, United States	manav003@umn.edu
Abdumalik Muminov	Independent Researcher	malik.traductor@gmail.com
Małgorzata Kossowska	Jagiellonian University, Department of Philosophy, Institute of Psychology, Krakow, Poland	malgorzata.kossowska@uj.edu.pl
Maja Friedemann	University of Oxford, Oxford, United Kingdom	maja.friedemann@sjc.ox.ac.uk
Magdalena Wielgus	Jagiellonian University, Institute of Applied Psychology, Krakow, Poland	magda.wielgus@uj.edu.pl
Madelon L.M. van Hooff	Radboud University, Nijmegen, Netherlands	madelon.vanhooff@ru.nl
Marco A. C. Varella	University of São Paulo, Institute of Psychology, Department of Experimental Psychology, São Paulo, Brazil	macvarella@usp.br
Martyn Standage	University of Bath, Department for Health Centre for Motivation and	m.standage@bath.ac.uk

	Health Behaviour Change, United Kingdom	
Matilde Nicolotti	University of Milano-Bicocca, Department of Psychology, Milan, Italy	m.nicolotti@campus.unimib.it
Melissa F Colloff	University of Birmingham, Birmingham, United Kingdom	m.colloff@bham.ac.uk
Maria Bradford	Universidad de los Andes, Department of Psychology, Bogotá, Colombia	m.bradford10@uniandes.edu.co
Leigh Ann Vaughn	Ithaca College, Ithaca, United States	Lvaughn@ithaca.edu
Luis Eudave	University of Navarra, Pamplona, Spain	luiseudave@gmail.com
Luc Vieira	Université de Paris, Paris, France	lucvieira@protonmail.com
Lina Maria Sanabria Pineda	Universidad de los Andes, Department of Psychology, Bogotá, Colombia	lsanabriapineda@gmail.com
Lennia Matos	Pontifical Catholic University of Peru, Lima, Peru	lmatosf@pucp.pe
Laura Calderón Pérez	Universidad de los Andes, Department of Psychology, Bogotá, Colombia	lm.calderon10@uniandes.edu.co
Ljiljana B. Lazarevic	University of Belgrade, Faculty of Philosophy, Belgrade, Serbia	ljiljana.lazarevic@f.bg.ac.rs
Lisa M Jaremka	University of Delaware, Department of Psychological and Brain Sciences, Newark, United States	ljaremka@udel.edu
Eline S. Smit	University of Amsterdam/ASCoR, Amsterdam, Netherlands	E.S.Smit@uva.nl
Elizaveta Kushnir	Independent Researcher	lizakushnir@yandex.ru
Lisa J. Ferguson	Northumbria University, Newcastle upon Tyne, United Kingdom	lisa2.ferguson@northumbria.ac.uk

Lisa Anton-Boicuk	University of Vienna, Social, Cognitive and Affective Neuroscience Unit, Department of Cognition, Emotion, and Methods in Psychology, Faculty of Psychology, Vienna, Austria	lisa.anton-boicuk@univie.ac.at
Gabriel Lins de Holanda Coelho	University College Cork, Cork, Ireland	linshc@gmail.com
Lina Ahlgren	Åbo Akademi University, Faculty of Arts, Psychology and Theology, Turku, Finland	lina.ahlgren@gmail.com
Francesca Liga	Università di Messina, Dipartimento DIMED, Messina, Italy	ligaf@unime.it
Carmel A Levitan	Occidental College, Department of Cognitive Science, Los Angeles, United States	levitan@oxy.edu
Leticia Micheli	Leibniz University Hannover, Institute of Psychology, Hanover, Germany	micheli@psychologie.uni-hannover.de
Lesley-Ann Gunton	Northumbria University, Newcastle upon Tyne, United Kingdom	lesley-ann.gunton@northumbria.ac.uk
Leonhard Volz	University of Amsterdam, Amsterdam, Netherlands	leonhard.volz@gmail.com
Marija Stojanovska	PSA Psihesko, Skopje, North Macedonia	lemarija22@gmail.com
Leanne Boucher	Nova Southeastern University, Department of Psychology and Neuroscience, Fort Lauderdale, United States	lb1079@nova.edu
Lara Samojlenko	University of Primorska, Department of Psychology, Faculty of Mathematics, Natural Sciences and Information Technologies, Koper, Slovenia	lara.samojlenko@gmail.com
Lady Grey Javela Delgado	Universidad del Rosario, Programa de Psicología, Bogotá, Colombia	lady.javela@urosario.edu.co

Lada Kaliska	Matej Bel University, Department of Psychology, Faculty of Education, Banska Bystrica, Slovakia	lada.kaliska@umb.sk
Beatrix Labadi	University of Pécs, Institute of Psychology, Pécs, Hungary	labadi.beatrix@pte.hu
Lara Warmelink	Lancaster University, Department of Psychology, Lancaster, United Kingdom	l.warmelink@lancaster.ac.uk
Luis Miguel Rojas-Berscia	University of Queensland, School of Languages and Cultures, Brisbane, Australia Pontificia Universidad Católica del Perú, Centro de Estudios Orientales, Lima, Peru	lmrojasb@pucp.pe
Karen Yu	Sewanee: The University of the South, Department of Psychology, Sewanee, United States	kyu@sewanee.edu
Keith Wylie	Emporia State University, Emporia, United States	kwylie@emporia.edu
Jakub Wachowicz	Independent Researcher	kubawachowicz7@gmail.com
Kermeka Desai	Indiana University of Pennsylvania, Indiana, United States	kermeka@gmail.com
Krystian Barzykowski	Jagiellonian University, Institute of Psychology, Krakow, Poland	krystian.barzykowski@uj.edu.pl
Luca Kozma	University of Pécs, Institute of Psychology, Pécs, Hungary University of the West of Scotland, School of Education and Social Sciences, Division of Psychology, Paisley, Scotland	luca.kozma@uws.ac.uk
Kortnee Evans	Murdoch University, College of Science, Health, Engineering and Education, Perth, Australia	kortnee.evans@education.wa.edu.au
Komila Kirgizova	Independent Researcher	komila@hotmail.it

Bamikole Emmanuel Agesin	Adekunle Ajasin University, Akungba Akoko, Ondo State, Nigeria	koleagesin@yahoo.com
Monica A Koehn	University of Canberra, Discipline of Psychology, Faculty of Health, Canberra, Australia	koehn.monica@gmail.com
Kelly Wolfe	University of Edinburgh, Department of Psychology, Edinburgh, United Kingdom	kwolfe@ed.ac.uk
Tatiana Korobova	London Gates Education Group, Moscow, Russia	klushca@gmail.com
Katherine Morris	Willamette University, Salem, United States	klmorris249@gmail.com
Kristoffer Klevjer	UiT The Arctic University of Norway, Department of Psychology, Tromsø, Norway	klevjer@gmail.com
Kevin van Schie	Erasmus University Rotterdam, Department of Psychology, Education & Child Studies, Erasmus School of Social and Behavioural Sciences, Rotterdam, Netherlands University of Cambridge, MRC Cognition and Brain Sciences Unit, Cambridge, United Kingdom	kevinvschie@gmail.com
Kevin Vezirian	Université Grenoble Alpes, LIP/PC2S, Grenoble, France	kevin.vezirian@gmail.com
Kaja Damnjanović	The University of Belgrade, Faculty of Philosophy, Department of Psychology, Institute of Philosophy, Belgrade, Serbia	kdamnjan@f.bg.ac.rs
Katrine Krabbe Thommesen	University of Copenhagen, Faculty of Health and Medical Sciences, Copenhagen, Denmark	katrinekrabbe@gmail.com
Kathleen Schmidt	Southern Illinois University, School of Psychological and Behavioral Sciences, Carbondale, United States	kathleen.schmidt@siu.edu

Katarzyna Filip	Jagiellonian University, Institute of Psychology, Krakow, Poland	katarzyna.filip95@gmail.com
Karolina Staniaszek	Independent Researcher	karolina.staniaszek@gmail.com
Karolina Grzech	University of Valencia, Valencia, Spain Stockholm University, Stockholm, Sweden	szarota@gmail.com
Karlijn Hoyer	Tilburg University, Tilburg, Netherlands	karlijnhoyer@gmail.com
Karis Moon	Kingston University London, Department of Management, Kingston, United Kingdom	Karisamoon@gmail.com
Sirikon Khaobunmasiri	Suranaree University of Technology, Nakhon Ratchasima, Thailand	kanjana@sut.ac.th
Kafeel Rana	Government College University, Lahore, Pakistan	kafeelrana87@gmail.com
Kristina Janjić	PSA Psihesko, Skopje, North Macedonia	k.janjic@yahoo.com
Jordan W Suchow	Stevens Institute of Technology, School of Business, Hoboken, United States	jws@stevens.edu
Julita Kielińska	Jagiellonian University, Institute of Psychology, Krakow, Poland	julita.kielinska@alumni.uj.edu.pl
Julio E Cruz Vásquez	Universidad de los Andes, Department of Psychology Bogotá, Colombia	julioeduardocruz@gmail.com
Julien Chanal	University of Geneva, Geneva, Switzerland	julien.chanal@unige.ch
Julia Beitner	Goethe University Frankfurt, Department of Psychology, Frankfurt am Main, Germany	beitner@psych.uni-frankfurt.de
Juan Camilo Vargas-Nieto	Universidad de los Andes, Department of Psychology, Bogotá, Colombia	juanvargaspsicologia@gmail.com

Jose Carlos T Roxas	University of the Philippines Diliman, Department of Psychology, Quezon City, Philippines De La Salle College of Saint Benilde, Department of Psychology, Antipolo, Philippines	jtroxas@up.edu.ph
Jennifer Taber	Kent State University, Department of Psychological Sciences, Kent, United States	jtaber1@kent.edu
Joan Urriago-Rayo	Independent Researcher	joan.urriago.rayo@gmail.com
Jeffrey M. Pavlacic	University of Mississippi, Department of Psychology, Oxford, Mississippi, United States	jpavlaci@go.olemiss.edu
Jozef Benka	Pavol Jozef Šafárik University, Košice, Slovakia	jozef.benka@upjs.sk
Jozef Bavolar	Pavol Jozef Šafárik University in Košice, Department of Psychology, Faculty of Arts, Košice, Slovakia	jozef.bavolar@upjs.sk
José A. Soto	The Pennsylvania State University, Department of Psychology, State College, United States	josesoto@psu.edu
Jonas K Olofsson	Stockholm University, Department of Psychology, Stockholm, Sweden	jonas.olofsson@psychology.su.se
Johannes K Vilsmeier	University of Vienna, Department of Cognition, Emotion, and Methods in Psychology, Vienna, Austria	johannes.vilsmeier@univie.ac.at
Johanna Messerschmidt	Leipzig University, Institute of Psychology, Leipzig, Germany	johanna.messerschmidt@gmail.com
Johanna Czamanski-Cohen	University of Haifa, School of Creative Arts Therapies, Haifa, Israel University of Haifa, Emili Sagol Creative Arts Therapies Research Center, Haifa, Israel	joczamanski@gmail.com
Joachim Waterschoot	Ghent University, Ghent, Belgium	joachim.waterschoot@ugent.be

Jennifer D. Moss	Emporia State University, Department of Psychology, Emporia, United States	jmoss3@emporia.edu
Jordane Boudesseul	Universidad de Lima, Facultad de Psicología, Instituto de Investigación Científica, Lima, Peru	jmj.boudesseul@gmail.com
Jeong Min Lee	Georgia State University, Department of Psychology, Atlanta, United States	jlee500@gsu.edu
Julia Kamburidis	Sofia University St. Kliment Ohridski, Department of General, Experimental, Developmental, and Health Psychology, Sofia, Bulgaria	jkamburidis@gmail.com
Jennifer A Joy-Gaba	Virginia Commonwealth University, Richmond, United States	jjoygaba@vcu.edu
Janis Zickfeld	Aarhus University, Department of Management, Aarhus, Denmark	jhzickfeld@gmail.com
Jacob F Miranda	The University of Alabama, Tuscaloosa, Department of Psychology, Tuscaloosa, United States	jfmiranda@crimson.ua.edu
Jeroen P. H. Verharen	University of California Berkeley, Department of Molecular and Cell Biology, Berkeley, United States	jeroenverharen@berkeley.edu
Evgeniya Hristova	New Bulgarian University, Cognitive Science and Psychology Department, Sofia, Bulgaria	ehristova@cogs.nbu.bg
Julie E. Beshears	Alliant International University, San Diego, United States	jeb1118@comcast.net
Jasna Milošević Đorđević	Singidunum University, Faculty of Media and Communication, Belgrade, Serbia	jasna.milosevic@yahoo.com
Jasmijn Bosch	University of Milan-Bicocca, Milan, Italy	Jasmijn.e.bosch@gmail.com
Jaroslava Varella Valentova	University of São Paulo, Institute of Psychology, Department of	jaroslava@usp.br

	Experimental Psychology, São Paulo, Brazil	
Jan Antfolk	Åbo Akademi University, Faculty of Arts, Psychology and Theology, Turku, Finland	jantfolk@abo.fi
Jana B. Berkessel	University of Mannheim, Mannheim Centre for European Social Research, Mannheim, Germany	jana.berkessel@uni-mannheim.de
Jana Schrötter	Pavol Jozef Šafárik University in Košice, 1st Department of Psychiatry, Faculty of Medicine, Košice, Slovakia	jana.schrotter@upjs.sk
Jan Urban	Charles University, Environment Centre, Czechia	jan.urban@czp.cuni.cz
Jan Philipp Röer	Witten/Herdecke University, Department of Psychology, Witten, Germany	jan.roeer@uni-wh.de
James O Norton	Murdoch University, College of Science, Health, Engineering & Education, Perth, Australia	james.norton@murdoch.edu.au
Jaime R Silva	Universidad del Desarrollo, Facultad de Psicología, Santiago, Chile Clínica Alemana de Santiago, Chile Sociedad Desarrollo Emocional, Chile	jaimesilva@udd.cl
Jade S Pickering	University of Southampton, School of Psychology, Southampton, United Kingdom	j.s.pickering@soton.ac.uk
Jáchym Vintr	Charles University, Department of Psychology, Faculty of Arts, Prague, Czechia	vintrj@student.cuni.cz
Jim Uttley	University of Sheffield, School of Architecture, Sheffield, United Kingdom	j.uttley@sheffield.ac.uk
Jonas R Kunst	University of Oslo, Department of Psychology, Oslo, Norway	j.r.kunst@psykologi.uio.no

Izuchukwu L. G. Ndukaihe	Alex Ekwueme Federal University, Department of Psychology, Ndufu-Alike, Nigeria	izumario@yahoo.co.uk
Aishwarya Iyer	Sampurna Montfort College, Bangalore, India	iyeraishwarya.work@gmail.com
Iris Vilares	University of Minnesota, Twin Cities, Department of Psychology, Minneapolis, United States	ivilares@umn.edu
Aleksandr Ivanov	HSE University, Moscow, Russia	ivansash21112@mail.ru
Ivan Ropovik	Charles University, Faculty of Education, Institute for Research and Development of Education, Prague, Czechia University of Presov, Faculty of Education, Presov, Slovakia	ivan.ropovik@gmail.com
Isabela Sula	Independent Researcher	isabela.sula1997@gmail.com
Irena Sarieva	HSE University, Moscow, Russia	isarieva@hse.ru
Irem Metin-Orta	Atilim University, Department of Psychology, Ankara, Turkey	irem.metin@atilim.edu.tr
Irina Prusova	National Research University Higher School of Economics, Moscow, Russia	iprusova@hse.ru
Isabel Pinto	University of Porto, Center for Psychology at University of Porto, Porto, Portugal	ipinto@fpce.up.pt
Andreea Ioana Bozdoc	Lucian Blaga University of Sibiu, Department of Psychology, Sibiu, Romania	ioanabozdoc@gmail.com
Inês A. T. Almeida	University of Coimbra, Faculty of Medicine FMUC, Institute of Nuclear Sciences Applied to Health ICNAS, Coimbra Institute for Biomedical Imaging and Translational Research CIBIT, Coimbra, Portugal	italmeida@fmed.uc.pt

Ilse L. Pit	University of Oxford, Institute of Human Sciences, Oxford, United Kingdom Magdalen College, Calleva Research Centre for Evolution and Human Sciences, Oxford, United Kingdom	ilse.pit@anthro.ox.ac.uk
Ilker Dalgar	Ankara Medipol University, Department of Psychology, Ankara, Turkey	ilker.dalgar@ankaramedipol.edu.tr
Ilya Zakharov	Psychological Institute of the Russian Academy of Education, Developmental Behavioral Genetics Laboratory, Moscow, Russia, Russia	iliazaharov@gmail.com
Azuka Ikechukwu Arinze	Alex Ekwueme Federal University, Ndufu-Alike, Nigeria	ikeazukaarinze@gmail.com
Keiko Ihaya	Fukuoka Institute of Technology, Center for Liberal Arts, Fukuoka, Japan	ihayakk@gmail.com
Ian D Stephen	Macquarie University, Department of Psychology, Sydney, Australia	ian.stephen@mq.edu.au
Biljana Gjoneska	Macedonian Academy of Sciences and Arts, Skopje, North Macedonia	biljanagjoneska@manu.edu.mk
Hilmar Brohmer	University of Graz, Institute of Psychology, Graz, Austria	hilmar.brohmer@uni-graz.at
Heather Flowe	University of Birmingham, School of Psychology, Birmingham, United Kingdom	h.flowe@bham.ac.uk
Hendrik Godbersen	FOM University of Applied Sciences, Essen, Germany	hendrik.godbersen@godbersen.online
Halil Emre Kocalar	Muğla Sıtkı Koçman University, Department of Psychological Counseling and Guidance, Muğla, Turkey	hemrekocalar@mu.edu.tr
Mattie V Hedgebeth	Virginia Commonwealth University, Richmond, United States	hedgebethm@vcu.edu

Hu Chuan-Peng	Nanjing Normal University, School of Psychology, Nanjing, China	hcp4715@gmail.com
MohammadHasan Sharifian	University of Tehran, Department of Psychology, Tehran, Iran	hasan.sharifian@ut.ac.ir
Harry Manley	Chulalongkorn University, Faculty of Psychology, , Bangkok, Thailand	harrisonmanley@gmail.com
Handan Akkas	Ankara Science University, Business Administration Department, Ankara, Turkey	handan.akkas@hotmail.com
Nandor Hajdu	ELTE Eötvös Loránd University, Institute of Psychology, Budapest, Hungary	hajdu.nandor93@gmail.com
Habiba Azab	Baylor College of Medicine, Department of Neurosurgery, Houston, United States	habiba.azab@gmail.com
Gwenael Kaminski	Université de Toulouse, CLLE, CNRS, UT2J, Toulouse, France	gwenael.kaminski@univ-tlse2.fr
Gustav Nilsonne	Karolinska Institutet, Department of Clinical Neuroscience, Solna, Sweden Stockholm University, Department of Psychology, Stockholm, Sweden	gustav.nilsonne@ki.se
Gulnaz Anjum	University of Oslo, Department of Psychology, Oslo, Norway	gulnaz.anjum@psykologi@uio.no
Giovanni A Travaglino	Royal Holloway, University of London, Department of Law and Criminology, London, United Kingdom	giovanni.travaglino@rhul.ac.uk
Gilad Feldman	University of Hong Kong, Hong Kong SAR	giladfel@gmail.com
Gerit Pfuhl	UiT The Arctic University of Norway, Tromsø, Norway	gerit.pfuhl@uit.no
Gabriela Czarnek	Jagiellonian University, Institute of Psychology, Krakow, Poland	gabriela.czarnek@uj.edu.pl

Gabriela Mariana Marcu	Lucian Blaga University of Sibiu, Department of Psychology, Sibiu Romania Carol Davila University of Medicine and Pharmacy Bucharest, Romania	gabriela.marcu@ulbsibiu.ro
Gabriela Hofer	University of Graz, Institute of Psychology, Graz, Austria	gabriela.hofer@uni-graz.at
Gabriel Banik	University of Presov, Institute of Psychology, Presov, Slovakia	gabriel.banik@gmail.com
Gabriel Agboola Adetula	Adekunle Ajasin University, Department of Pure and Applied Psychology, Faculty of Social and Management Sciences, Akungba Akoko, Nigeria	g1b2gbo3detul4@gmail.com
Gijsbert Bijlstra	Radboud University, Behavioural Science Institute, Nijmegen, Netherlands	g.bijlstra@bsi.ru.nl
Frederick Verbruggen	Ghent University, Department of Experimental Psychology, Ghent, Belgium	frederick.verbruggen@ugent.be
Franki Y. H. Kung	Purdue University, West Lafayette, United States	frankikung@purdue.edu
Frank Martela	Aalto University, Espoo, Finland	frank.martela@aalto.fi
Francesco Foroni	Australian Catholic University, Sydney, Australia	francesco.foroni@acu.edu.au
Jacques Forest	Université du Québec à Montréal, School of Management, Montreal, Canada	forest.jacques@uqam.ca
Gage Singer	Indiana University of Pennsylvania, Department of Psychology, Indiana, United States	gagesinger@live.com
Fany Muchembled	Instituto Tecnológico de Estudios Superiores de Monterrey, Monterrey, Mexico	fany.muchembled@tec.mx

Flavio Azevedo	Friedrich Schiller University Jena, Jena, Germany	flavio.azevedo@uni-jena.de
Farnaz Mosannenzadeh	Radboud University, Faculty of Social Sciences, Behavioural Science Institute, Nijmegen, Netherlands	farnaz.mosannenzadeh@ru.nl
Evelina Marinova	Sofia University St. Kliment Ohridski, Department of General, Experimental, Developmental, and Health Psychology, Sofia, Bulgaria	evelina.b.marinova@gmail.com
Eva Štrukelj	Sapienza University of Rome, Dynamic and Clinical Psychology, Rome, Italy	eva.strukelj2@gmail.com
Zahra Etebari	Ferdowsi University of Mashhad, Mashhad, Iran	etebari.zahra@gmail.com
Ernest Baskin	Saint Joseph's University, Philadelphia, United States	ebaskin@sju.edu
Elkin Oswaldo Luis Garcia	Universidad de Navarra, Pamplona, Spain	eoswaldo@unav.es
Erica Musser	Florida International University, Department of Psychology, Center for Children and Families, Miami, United States	emusser@fiu.edu
I.M.M. van Steenkiste	Universiteit Leiden, Leiden, Netherlands	imvsteenkiste@gmail.com
Emma L. Bradshaw	Australian Catholic University, Institute for Positive Psychology and Education, Sydney, Australia	emma.bradshaw@acu.edu.au
El Rim Ahn	University of Florida, Department of Psychology, Gainesville, United States	elrimahn@ufl.edu
Eleanor Quested	Curtin University, Perth, Australia	eleanor.quested@curtin.edu.au
Ekaterina Pronizius	University of Vienna, Department of Cognition, Emotion, and Methods in Psychology, Faculty of Psychology, Vienna, Austria	ekaterina.pronizius@univie.ac.at

Emily A Jackson	Indiana University of Pennsylvania, Indiana, United States	ejackson@iup.edu
Efisio Manunta	Université de Toulouse, CLLE, CNRS, UT2J, Toulouse, France	efisio.manunta@univ-tlse2.fr
Elena Agadullina	HSE University, Moscow, Russia	eagadullina@hse.ru
Dušana Šakan	Union University, Faculty of Legal and Business Studies Dr Lazar Vrkatic, Department of Psychology, Novi Sad, Serbia	dusana.sakan@flv.edu.rs
Pinar Dursun	Afyon Kocatepe University, Department of Psychology, Afyonkarahisar, Turkey	dursun.pinar@gmail.com
Olivier Dujols	University of Grenoble Alpes, Grenoble, France	dujols.ol@gmail.com
Dmitrii Dubrov	HSE University, RF	ddubrov@hse.ru
Megan Willis	Australian Catholic University, School of Behavioural and Health Sciences, Sydney, Australia	Dr.Megan.Willis@gmail.com
Murat Tümer	Hacettepe University, Department of Anesthesiology and Reanimation, Ankara, Turkey	m.tumer@hacettepe.edu.tr
Jennifer L Beaudry	Swinburne University of Technology, Department of Psychological Sciences, Melbourne, Australia	jbeaudry@swin.edu.au
Dora Popović	Institute of Social Sciences Ivo Pilar, Zagreb, Croatia	dora.popovic@pilar.hr
Daniel Dunleavy	Florida State University, Center for Translational Behavioral Science, Tallahassee, United States	djd09e@fsu.edu
Ikhlas Djamai	Mohammed V University in Rabat, Rabat, Morocco	djamaiikhlas@gmail.com
Dino Krupić	The University of Osijek, Faculty of Humanities and Social Science, Osijek, Croatia	dkrupic@ffos.hr

Dora Herrera	Pontifical Catholic University of Peru, Lima, Peru	diherrer@pucp.pe
Diego Vega	Universidad Latina de Costa Rica, San Pedro, Costa Rica	luis.vegaa@ulatina.cr
Hongfei Du	Beijing Normal University at Zhuhai, Institute of Advanced Studies in Humanities and Social Sciences, Zhuhai, China	dhfpsy@gmail.com
Débora Mola	Universidad Nacional de Córdoba, Instituto de Investigaciones Psicológicas ([IIPsi]CONICET y UNC), Facultad de Psicología, Córdoba, Argentina	debora.mola@unc.edu.ar
Desislava Chakarova	New Bulgarian University, Sofia, Bulgaria	de.chakarova@gmail.com
William E Davis	Wittenberg University, Department of Psychology, Springfield, United States	davisw4@wittenberg.edu
Dawn Liu Holford	University of Essex, Essex, United Kingdom	dawn.liuholford@gmail.com
David M. G. Lewis	Murdoch University, College of Science, Health, Engineering and Education, Perth, Australia Murdoch University, Centre for Healthy Ageing, Health Futures Institute, Perth, Australia,	davidlewis@utexas.edu
David C. Vaidis	Université de Paris, Paris, France	david.vaidis@u-paris.fr
Daphna Hausman Ozery	California State University, Northridge, United States	daphna.ozery@csun.edu
Danilo Zambrano Ricaurte	Fundación Universitaria Konrad Lorenz, Faculty of Psychology, Bogotá, Colombia	danilo.zambranor@konradlorenz.edu.co
Daniel Storage	University of Denver, Department of Psychology, Denver, United States	Daniel.Storage@du.edu

Daniela Sousa	University of Coimbra, Institute of Nuclear Sciences Applied to Health ICNAS, Coimbra Institute for Biomedical Imaging and Translational Research CIBIT, Coimbra, Portugal	daniela.d.sousa@uc.pt
Daniela Serrato Alvarez	Fundación Universitaria Konrad Lorenz, Bogotá, Colombia	daniela.serratoa@konradlorenz.edu.co
Daniel Boller	University of St. Gallen, St. Gallen, Switzerland	daniel.boller@unisg.ch
Anna Dalla Rosa	University of Padova, Department of Philosophy, Sociology, Education and Applied Psychology, Padua, Italy	anna.dallarosa@unipd.it
Daliborka Dimova	PSA Psihesko, Skopje, North Macedonia	daliborkadimova@gmail.com
Dajana Krupić	Norvel - Psychological Centre for Counselling and Research, Croatia	dajana.krupic@norvel.hr
Dafne Marko	University of Ljubljana, Cognitive Science, Faculty of Education, Ljubljana, Slovenia	dafne.marko@gmail.com
David Moreau	The University of Auckland, School of Psychology and Centre for Brain Research, Auckland, New Zealand	d.moreau@auckland.ac.nz
Crystal Reeck	Temple University, Fox School of Business, Philadelphia, United States	crystalreeck@gmail.com
Rita C Correia	University of Porto, Center for Psychology at University of Porto, Porto, Portugal	correia.rita.27@gmail.com
Cassie M Whitt	University of Alabama, Tuscaloosa, United States	cassiewhitt9@gmail.com
Claus Lamm	University of Vienna, Department of Cognition, Emotion, and Methods in Psychology, Faculty of Psychology, Vienna, Austria	claus.lamm@univie.ac.at

Claudio Singh Solorzano	Sapienza University, Department of Psychology, Rome, Italy	claudio.singh@uniroma1.it
Claudia C von Bastian	University of Sheffield, Department of Psychology, Sheffield, United Kingdom	c.c.vonbastian@sheffield.ac.uk
Clare AM Sutherland	University of Aberdeen, School of Psychology, King's College, Aberdeen, Scotland University of Western Australia, School of Psychological Science, Perth, Australia	clare.sutherland@abdn.ac.uk
Clara Overkott	University of Zurich, Department of Psychology, Zurich, Switzerland	c.overkott@psychologie.uzh.ch
Christopher L. Aberson	Cal Poly Humboldt, Arcata, United States	cla18@humboldt.edu
Chunhui Wang	Chinese Center of Disease Prevention and Control, China	chunhui.wang.qdjk@gmail.com
Christopher P. Niemiec	University of Rochester, Rochester, United States	christopher.niemiec@rochester.edu
Christina Reimer	Ghent University, Ghent, Belgium	reimerc7@gmail.com
Christiana Karashiali	University of Cyprus, Department of Psychology, Nicosia, Cyprus	karashiali.christiana@ucy.ac.cy
Chris Noone	National University of Ireland, Galway, School of Psychology, Galway, Ireland	chris.noone@nuigalway.ie
Faith Chiu	University of Essex, Department of Language and Linguistics, Essex, United Kingdom	f.chiu@essex.ac.uk
Chiara Picciocchi	University of Naples L'Orientale, Naples, Italy	chiara.picciocchi@outlook.com
Charlotte Eben	Ghent University, Ghent, Belgium	charlotte.eben@gmx.de
Charlotte Brownlow	University of Southern Queensland, Toowoomba, Australia	Charlotte.brownlow@usq.edu.au

Cemre Karaarslan	University of Başkent, Institute of Social Sciences, Department of Psychology, Ankara, Turkey	cemrekaraarslann@gmail.com
Nicola Cellini	University of Padua, Department of General Psychology, Department of Biomedical Sciences, Padova Neuroscience Center, and Human Inspired Technology Center, Padua, Italy	nicola.cellini@unipd.it
Celia Esteban-Serna	University College London, Division of Psychology & Language Sciences, London, United Kingdom	celiaestser99@gmail.com
Cecilia Reyna	Universidad Nacional de Córdoba (UNC), Facultad de Psicología; Instituto de Investigaciones Psicológicas (IIPsi) - Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) - UNC, Córdoba, Argentina	ceciliareyna@unc.edu.ar
Cecilia Ferreyra	Pontificia Universidad Católica del Peru, Lima, Peru	cecilia.ferreyra@pucp.pe
Carlota Batres	Franklin and Marshall College, Department of Psychology, Lancaster, United States	cbatres@fandm.edu
Ranran Li	Vrije Universiteit Amsterdam, Department of Experimental and Applied Psychology, Amsterdam, Netherlands	ranran.li@vu.nl
Caterina Grano	Sapienza University, Department of Psychology, Rome, Italy	caterina.grano@uniroma1.it
Joelle Carpentier	Université du Québec à Montréal, School of Management, Department of Organization and Human Resources, Montreal, Canada	carpentier.joelle@uqam.ca
Christian K. Tamnes	University of Oslo, Department of Psychology, Oslo, Norway	c.k.tamnes@psykologi.uio.no

Cynthia H.Y. Fu	University of East London, School of Psychology., London, United Kingdom King's College London, Centre for Affective Disorders, Institute of Psychiatry, Psychology and Neuroscience, London, United Kingdom	c.fu@uel.ac.uk
Byurakn Ishkhanyan	Aarhus University, School of Communication and Culture, Aarhus, Denmark University of Copenhagen, Department of Nordic Studies and Linguistics, Copenhagen, Denmark	byurakn@cc.au.dk
Lisa Bylinina	Leiden University, Leiden, Netherlands	bylinina@gmail.com
Bastian Jaeger	Vrije Universiteit Amsterdam, Department of Experimental and Applied Psychology, Amsterdam, Netherlands Tilburg University, Department of Social Psychology, Tilburg, Netherlands	bxjaeger@gmail.com
Carsten Bundt	University of Oslo, Department of Psychology, Oslo, Norway	bundt.carsten@gmail.com
Tara Bulut Allred	University of Belgrade, Faculty of Philosophy, Laboratory for Research of Individual Differences, Belgrade, Serbia	tara.bulut@f.bg.ac.rs
Branko J. Vermote	Ghent University, Ghent, Belgium	branko.vermote@ugent.be
Ahmed Bokkour	Mohammed V University in Rabat, Rabat, Morocco	bokkour.ahmed@gmail.com

Natalia Bogatyreva	National Research University Higher School of Economics, Moscow, Russia	nbogatyreva@hse.ru
Jiaxin Shi	The University of Hong Kong, Hong Kong, SAR China	langlang723@foxmail.com
William J Chopik	Michigan State University, Department of Psychology, East Lansing, United States	bill.chopik@gmail.com
Benedict Antazo	Jose Rizal University, Department of Psychology, Mandaluyong, Philippines	bgantazo@gmail.com
Behzad Behzadnia	University of Tabriz, Faculty of Physical Education and Sport Science, Department of Motor Behavior, Tabriz, Iran	behzadniaa@gmail.com
Maja Becker	Université de Toulouse, CLLE, CNRS, Toulouse, France	mbecker@univ-tlse2.fr
Manal M. Bayyat	School of Sport Science, University of Jordan, Jordan	Mabayyat@yahoo.com
Beatrice Cocco	Independent Researcher	beatricecocco094@gmail.com
Wei-Lun Chou	Fo Guang University, Department of Psychology, Jiaoxi, Taiwan	chouweilun@ntu.edu.tw
Vassilis Barkoukis	Aristotle University of Thessaloniki, Thessaloniki, Greece	bark@phed.auth.gr
Barbora Hubena	Independent Researcher	barbora.hubena@gmail.com
Barbara Žuro	The Institute of Psychology, Dublin, Ireland University of Osijek, Faculty of Humanities and Social Sciences, Osijek, Croatia	barbara.zuro1@gmail.com
Balazs Aczel	ELTE Eötvös Loránd University, Institute of Psychology, Budapest, Hungary	balazs.aczel@gmail.com

Ekaterina Baklanova	Lomonosov Moscow State University, Institute of Asian and African Studies, Moscow, Russia	baklanova@gmail.com
Hui Bai	University of Minnesota Twin Cities, Minneapolis, United States	baixx062@umn.edu
Busra Bahar Balci	Samsun University, Department of Psychology, Samsun, Turkey Dokuz Eylül University, Department of Psychology, Izmir, Turkey	baharbalci2@gmail.com
Peter Babinčák	University of Presov, Faculty of Arts, Institute and Psychology, Presov, Slovakia	peter.babincak@unipo.sk
Bart Soenens	Ghent University, Department of Developmental, Personality and Social Psychology	Bart.Soenens@ugent.be
Barnaby James Wyld Dixson	University of the Sunshine Coast, School of Health and Behavioural Sciences, Sippy Downs, Australia	bdixson@usc.edu.au
Aviv Mokady	Ben Gurion University, Department of Psychology, Beersheba, Israel	avmokady@gmail.com
Heather Barry Kappes	London School of Economics and Political Science, Department of Management, London, United Kingdom	h.kappes@lse.ac.uk
Mohammad Atari	University of Southern California, Department of Psychology, Los Angeles, United States	atari@usc.edu
Anna Szala	Centre of Language Evolution Studies, Nicolaus Copernicus University in Toruń, Poland	aszala88@gmail.com
Anna Szabelska	Queen's University Belfast, Belfast, Ireland	szabelska.anna@gmail.com
John Jamir Benzon Aruta	Department of Psychology, School of Medical and Life	aruta_johnjamirbenzon@yahoo.com

	Sciences, Sunway University, Malaysia	
Artur Domurat	Kozminski University, Centre for Economic Psychology and Decision Sciences, Warsaw, Poland	adomurat@kozminski.edu.pl
Nwadiogo Chisom Arinze	Alex Ekwueme Federal University Ndufu-Alike, Nigeria	arinzenwadiogo@gmail.com
Arianna Modena	Università degli Studi di Trieste, Dipartimento di Scienze Giuridiche, del Linguaggio, dell'Interpretazione e della Traduzione, Trieste, Italy	ariannamodena95@gmail.com
Arca Adiguzel	Muğla Sıtkı Koçman University, Department of Psychological Counseling and Guidance, Muğla, Turkey	arcaadiguzel@mu.edu.tr
Arash Monajem	University of Tehran, Tehran, Iran	arash.monajem@hotmail.com
Kanza AIT EL ARABI	Mohammed V University of Rabat, Rabat, Morocco	arabikanza@gmail.com
Asil Ali Özdoğru	Üsküdar University, Department of Psychology, Istanbul, Turkey	asil.ozdogru@uskudar.edu.tr
Alex O. Rothbaum	Case Western Reserve University, Cleveland, United States	aor13@case.edu
Adriana Julieth Olaya Torres	Universidad del Desarrollo, Faculty of Psychology, Santiago, Chile	aolayat@udd.cl
Andriana Theodoropoulou	University of Essex, Department of Psychology, Essex, United Kingdom	a.theodoropoulou@essex.ac.uk
Anna Skowronek	Independent Researcher	anna.allodola@gmail.com
Anita Penić Jurković	Kindergarten Kustošija, Zagreb, Croatia	anita.penic.vk@gmail.com
Anisha Singh	Busara Center of Behavioural Economics, Kenya	anisha.singh@busaracenter.org
Angelos P. Kassianos	Cyprus University of Technology , Department of Nursing, Limassol, Cyprus	angelos.kassianos@cut.ac.cy

	University College London, Department of Applied Health Research, London, United Kingdom	
Andrej Findor	Comenius University in Bratislava, Faculty of Social and Economic Sciences, Bratislava, Slovakia	andrej.findor@fses.uniba.sk
Andree Hartanto	Singapore Management University, School of Social Sciences, Singapore	andreeh@smu.edu.sg
Anais Thibault Landry	Concordia University, John Molson Business School, Montreal, Canada	Anais.thibaultlandry@gmail.com
Ana Ferreira	University of Coimbra, Faculty of Medicine FMUC, Institute of Nuclear Sciences Applied to Health ICNAS, Coimbra Institute for Biomedical Imaging and Translational Research CIBIT , Coimbra, Portugal	apferreira@icnas.uc.pt
Anabela Caetano Santos	University of Lisbon, Aventura Social and DESSH, Faculty of Human Kinetics, Lisbon, Portugal University of Lisbon, Institute of Environmental Health, Medicine Faculty, Lisbon, Portugal ISCTE - Instituto Universitário de Lisboa, CIS-IUL, Lisbon, Portugal	anabelasantos@campus.ul.pt
Anabel De la Rosa-Gomez	National Autonomous University of Mexico, Faculty of Higher Studies Iztacala, Mexico City, Mexico	anabel.delarosa@iztacala.unam.mx
Amélie Gourdon-Kanhukamwe	Kingston University, London, United Kingdom King's College London, London, United Kingdom Institute for Globally Distributed Open Research and Education (IGDORE), United Kingdom	amelie.gourdon-kanhukamwe@kcl.ac.uk

Alexandria M. Luxon	Illinois Institute of Technology, Chicago, United States	aluxon@hawk.iit.edu
Anna Louise Todsen	University of St Andrews, Department of Psychology and Neuroscience, St Andrews, United Kingdom	alt8@st-andrews.ac.uk
Alper Karababa	Muğla Sıtkı Koçman University, Department of Psychological Counselling and Guidance, Faculty of Education, Muğla, Turkey	alperkarababa@mu.edu.tr
Allison Janak	New York University, Steinhardt, Department of Applied Psychology, New York, United States	apj263@nyu.edu
Alice Pilato	University of Trieste, Department of Translation and Interpretation, Trieste, Italy	alicepilato98@gmail.com
Alexandre Bran	Université de Paris, Paris, France	alexandre.bran@outlook.com
Alexa M Tullett	University of Alabama, Department of Psychology, Tuscaloosa, United States	alexa.tullett@gmail.com
Anna O. Kuzminska	University of Warsaw, Faculty of Management, Warsaw, Poland	akuzminska@wz.uw.edu.pl
Anthony J Krafnick	Dominican University, Department of Psychology, River Forest, United States	akrafnick@dom.edu
Anum Urooj	La Trobe University, Melbourne, Australia	ain.sonia@gmail.com
Ahmed Khaoudi	Mohammed V University in Rabat, Rabat, Morocco	ahmedkhaoudi@gmail.com
Afroja Ahmed	University of Limerick, Global MINDS, Department of Psychology, Limerick, Ireland	19283237@studentmail.ul.ie
Agata Groyecka-Bernard	University of Wroclaw, Institute of Psychology, Wroclaw, Poland	agata.groyecka@gmail.com

Adrian Dahl Askelund	Nic Waals Institute, Lovisenberg Diaconal Hospital, Oslo, Norway	adrian.askelund@gmail.com
Adeyemi Adetula	Université Grenoble Alpes, LIP/PC2S, Grenoble, France Alex Ekwueme Federal University, Department of Psychology, Ndufu-Alike, Nigeria	adeyemiadetula1@gmail.com
Anabel Belaus	Universidad Nacional de Córdoba, Instituto de Investigaciones Psicológicas (IIPsi) Consejo Nacional de Investigaciones Científicas y Técnicas, Córdoba, Argentina	abelaus@unc.edu.ar
Abdelilah Ca Charyate	Ibn Tofail University, Higher College of Education & Training Kenitra, Morocco	abdelilah.charyate@uit.ac.ma
Aaron L. Wichman	Western Kentucky University, Bowling Green, United States	aaron.wichman@wku.edu
Alina Stoyanova	Sofia University St. Kliment Ohridski, Department of General, Experimental, Developmental, and Health Psychology, Sofia, Bulgaria	a.svilenova@gmail.com
Anna Greenburgh	University College London, Department of Experimental Psychology, London, United Kingdom	a.greenburgh@ucl.ac.uk
Andrew G. Thomas	Swansea University, Psychology Department, Swansea, United Kingdom	research@agthomas.net
Alexios Arvanitis	University of Crete, Department of Psychology, Rethymno, Greece	a.arvanitis@uoc.gr
Patrick S Forscher	Université Grenoble Alpes, LIP/PC2S, Grenoble, France Busara Center for Behavioral Economics, Nairobi, Kenya	schnarrd@gmail.com

Peter R Mallik	Ashland University, Department of Psychology, Ashland, United States	pmallik@ashland.edu
Maximilian A. Primbs	Radboud University, Behavioural Science Institute, Nijmegen, Netherlands	maximilian.primbs@gmx.de
Jeremy K. Miller	Willamette University, Department of Psychology, Salem, United States	millerj@willamette.edu
Hannah Moshontz	University of Wisconsin-Madison, Department of Psychology, Madison, United States	hmoshontz@gmail.com
Heather L. Urry	Tufts University, Department of Psychology, Medford, United States	heather.urry@tufts.edu
Hans IJzerman	Université Grenoble Alpes, LIP/PC2S, Grenoble, France Institut Universitaire de France, Paris, France	h.ijzerman@gmail.com
Dana M. Basnight-Brown	United States International University - Africa, Nairobi, Kenya	dana.basnightbrown@usiu.ac.ke
Christopher R. Chartier	Ashland University, Department of Psychology, Ashland, United States	cchartie@ashland.edu
Erin M. Buchanan	Harrisburg University of Science and Technology, Harrisburg, United States	ebuchanan@harrisburgu.edu
Nicholas A. Coles	Harvard University, Harvard Kennedy School, Cambridge, United States Stanford University, Center for the Study of Language and Information, Stanford, United States	ncoles@stanford.edu

Abstract

The COVID-19 pandemic (and its aftermath) highlights a critical need to communicate health information effectively to the global public. Given that subtle differences in information framing can have meaningful effects on behavior, behavioral science research highlights a pressing question: Is it more effective to frame COVID-19 health messages in terms of potential losses (e.g., "If you do not practice these steps, you can endanger yourself and others") or potential gains (e.g., "If you practice these steps, you can protect yourself and others")? Collecting data in 48 languages from 15,929 participants in 84 countries, we experimentally tested the effects of message framing on COVID-19-related judgments, intentions, and feelings. Loss- (vs. gain-) framed messages increased self-reported anxiety among participants cross-nationally with little-to-no impact on policy attitudes, behavioral intentions, or information seeking relevant to pandemic risks. These results were consistent across 84 countries, three variations of the message framing wording, and 560 data processing and analytic choices. Thus, results provide an empirical answer to a global communication question and highlight the emotional toll of loss-framed messages. Critically, this work demonstrates the importance of considering unintended affective consequences when evaluating nudge-style interventions.

Keywords: Message framing, Anxiety, Nudges, COVID-19

Declarations

Funding

Due to the large-scale nature of the collaboration (over 500 co-authors), all funding sources are listed in a separate document.

Conflicts of interest/competing interests

We have no conflicts of interests/competing interests to report.

Availability of data and material

Data and materials are available here: https://osf.io/m6q8f/

Code availability

Code is available here: https://osf.io/m6q8f/

Authors' contributions

Due to the large-scale nature of the collaboration (over 500 co-authors), the author contributions are listed in a separate document.

Ethics approval

All participating research groups either obtained approval from their host institution's ethics committee, explicitly indicated that their institution did not require approval to conduct this type of experiment, or explicitly indicated that the experiment was covered by a preexisting ethics approval.

Consent to participate

All participants provided informed consent.

Introduction

Managing the COVID-19 pandemic (and its aftermath) hinges in part on effectively communicating health messages to the global public. One critical question is how to frame such messages, given widespread evidence from psychology and related fields that the way in which information is framed can have meaningful effects on behavior, even when the core information is essentially the same across distinct frames (for reviews, see Gallagher & Updegraff, 2012; Rothman, Desmarais, & Lenne, 2020). Indeed, in their widely-cited review recommending social and behavioral science applications for reducing the spread of COVID-19, Van Bavel and colleagues (2020) highlighted this very question: "Research is needed to determine whether a more positive [vs. negative] frame could educate the public and relieve negative emotions while increasing public health behaviors" (p. 462). More generally, Sunstein and Thaler (2003, p. 1182) have long argued that "In order to be effective, any effort to inform people must be rooted in an understanding of how people actually think. Presentation makes a great deal of difference: The behavioral consequences of otherwise identical pieces of information depend on how they are framed." In their view, framing constitutes a potentially powerful nudge–i.e., a way of altering people's behavior in a predictable way without changing the underlying incentives (Thaler & Sunstein, 2009; see also de Bruin & Bostrom, 2012; Downs, 2014).

In the case of COVID-19 health messaging, communicators could emphasize either (a) the benefits of compliance (i.e., *gain framing*) or (b) the costs of non-compliance (i.e., *loss framing*) with recommended actions. For example, as depicted in Figure 1, the United States Centers for Disease Control and Prevention (CDC) website (perhaps unintentionally) framed messages in terms of gains, asking the public to: "Wear a mask. Save lives" (CDC, 2021).

However, an alternative loss framing might have said: "If you do not wear a mask, lives may be lost."

Given the ability of news media, national and international health organizations, and political leaders to reach wide audiences, message framing effects could save a substantial number of lives with limited implementation costs. With this possibility in mind, we conducted an experiment to test the effect of loss- versus gain- framing of COVID-19-related public health messages on behavioral intentions, policy attitudes, and information seeking among participants in 84 countries during the pandemic. Moreover, we sought to assess the potential benefit of changes on those outcomes against the potential emotional costs that loss (vs. gain) framing might elicit.[1] Prior studies suggest that loss frames (versus gain frames) are associated with relatively more global negative than positive affect (Nabi et al., 2020; Gosling, Caparos, & Moutier, 2020). Here, we chose to examine whether loss (versus gain) framing would increase participants' anxiety, in particular, given that framing effects on anxiety have received little to no empirical attention and that anxiety has the potential to trigger significant health burdens.

Anxiety, "an emotion characterized by feelings of tension, worried thoughts, and physical changes like increased blood pressure" (American Psychological Association, 2021), may take the form of a temporary state, a chronic trait-like tendency, or a clinical disorder.[2] Anxiety has been linked with leading causes of human morbidity and mortality. For example, heightened

[1] Although behavioral decision researchers studying loss vs. gain framing have traditionally examined emotional states to understand their influence on behaviors and attitudes (for reviews, Dorison, Klusowski, Han, & Lerner, 2020; Lerner, Li, Valdesolo, & Kassam, 2015), they have tended to omit emotion as an outcome in nudge-style interventions (i.e., interventions that encourage desirable behavior without restricting choice or introducing economic incentives; Thaler & Sunstein, 2009). For counter-examples, see Allcott & Kessler, 2019; Loewenstein & O'Donoghue, 2006; Zlatev & Rogers, 2020.

[2] Anxiety disorders are ranked as the sixth largest contributor to non-fatal health loss globally and appear in the top 10 causes of years of healthy life lost in all WHO Regions (World Health Organization, 2021). We chose anxiety not only because it was a focal emotional state heightened by the pandemic (Aknin et al., 2021), but also because of its association with negative downstream consequences for coping and for overall health.

anxiety is linked to increased risk of cardiovascular disease mortality and morbidity (e.g., heart disease, stroke, and heart failure; Levine et al., 2021). It has also been linked to increased reactivity to losses (Hartley & Phelps, 2012; Xu et al., 2013) and increased stress hormone secretion (i.e., cortisol), which, when chronic, diminishes immune function and complicates individuals' ability to cope with stress (for review, Taylor, 2021). Moreover, the effect of anxiety on stress hormone secretion may worsen with age (ó Hartaigh et al., 2012; Otte et al., 2005), potentially putting elderly individuals who already face heightened risks from COVID-19 in an even more vulnerable position. While the anxiety triggered by exposure to public health messages is likely mild compared to the levels associated with a clinical disorder, any potential behavioral benefit from message framing must still be weighed against a potential emotional cost (intended or otherwise).

Given the global nature of the pandemic, it is critical to assess the generalizability of message framing effects on a global scale. Traditionally, psychological research on human behavior includes sample populations in western, educated, industrialized, rich, and democratic societies (i.e., WEIRD societies; Henrich, Heine, & Norenzayan, 2010a, 2010b). However, extrapolating from studies conducted in only a single location may miss meaningful cross-regional variation in effects. Consequently, this can lead to incomplete--and even potentially detrimental--policy recommendations. Thus, rather than assume generalization from a single population, research that aims to inform global policy recommendations during COVID-19 should incorporate a global sample (c.f., Bauer, 2019).

Method

We launched a global participant recruitment effort between April and September 2020, collecting data in 48 languages from 15,929 participants in 84 countries.[3] Participants were recruited by (1) research groups affiliated with the Psychological Science Accelerator (PSA; Moshontz et al., 2018) and (2) semi-representative research panels. The present experiment was bundled with another experiment—also conducted in collaboration with the PSA, but led by an independent research group—that assessed the relative effects of autonomy-supportive messages vs. controlling messages on motivation and behavioral intentions relevant to COVID-19. Participants completed both experiments in a randomized order after completing a pre-study survey that included demographic questions (for full wording of all questions from the pre-study survey and relevant descriptive statistics, see Table 1). The order of the study (first vs. second) did not have a main effect on any of the dependent variables, although there was one higher-order interaction with self-reported anxiety (described below). A third experiment investigated the effect of cognitive reappraisal, an emotion regulation strategy, and was conducted concurrently by the PSA with a different sample of participants (Wang et al., 2021).

In the present experiment, participants were randomly assigned to read COVID-19 health recommendations adapted from World Health Organization (WHO) advisories (e.g., social distancing, mask wearing) that were framed in terms of losses (e.g., "if you do not practice these four steps, you can endanger yourself and others") or gains (e.g., "if you practice these four steps, you can protect yourself and others"). To ensure that any observed effects arose from meaningful conceptual differences (as opposed to particular wording; see Wells & Windschitl, 1999), we also examined three variations of the framed messages (described below). These variations of the framed messages were designed to assess generalizability of loss vs. gain

[3] For country classification, we relied on standards promoted by the International Organization for Standardization. Nevertheless, we acknowledge the presence of ongoing territory disputes that are not reflected in these standards.

framing across different wordings. As such, the differences in wording are relatively minor compared to the more central manipulation of loss vs. gain framing. Thus, participants were randomly assigned to one of six between-subjects experimental conditions that varied both the framing and wording/version of the COVID-19 health recommendation.

Following the message framing manipulation, we measured four outcome variables: (1) behavioral intentions to follow guidelines to prevent COVID-19 transmission, (2) attitudes toward COVID-19 prevention policies, (3) whether participants chose to seek more information about COVID-19, and (4) self-reported anxiety. Seeking to create conditions under which one might detect any systematic effect of framing, we selected scale responses concerning behavioral intentions and information seeking as outcome variables. We selected attitudes toward COVID-19 prevention policies because garnering citizen support for public policies is a critical ingredient in successfully combating the COVID-19 pandemic. Finally, we measured self-reported anxiety to assess the extent to which message framing may trigger unintended affective consequences, beyond traditional behavioral or policy outcomes.

Psychological Science Accelerator (PSA) COVID-19 Rapid Project

We conducted the present experiment as part of a larger PSA COVID-19 Rapid Project, which involved one pre-study general survey and three experiments related to COVID-19 (Forscher, Paris, Primbs, & Coles, 2020). The study and the experiments were presented online through the *formR* survey platform (Arslan, Walther, & Tata, 2020). The present experiment was bundled with another experiment, both of which participants completed in random order after completing the pre-study general survey that included questions about beliefs and behaviors related to COVID-19.

Participants

Sample size was primarily determined by the availability of resources amongst members of the PSA. Nevertheless, results from an a-priori power simulation estimating power as a function of number of countries, number of participants per country, intraclass correlations, effect sizes, and between-country variability in effect sizes can be found at https://osf.io/m6q8f/. After excluding data from participants who (a) had corrupted data due to technical difficulties, (b) did not provide responses to our outcomes of interest, or (c) did not indicate their country of origin, we were left with data from 15,929 participants (59% female, 36% male, 4% non-response, < 1% other; M_{age} = 33.70 , SD_{age} = 14.45), who lived in 84 different countries and completed the survey in a total of 48 languages. Participants were recruited either through semi-representative research panels (n = 5,555) or by PSA research groups (n = 10,374; see Forscher, Paris, Primbs, & Coles, 2020, for more details on sampling and translations). The survey was conducted during the Spring and Summer of 2020.

Procedure

Independent variables. Participants were randomly assigned to view loss- or gain-framed versions of four recommendations related to COVID-19 adapted from the WHO in Spring 2020. These recommendations related to: (1) staying home (unless absolutely necessary), (2) avoiding all shops other than necessary ones (such as for food), (3) wearing a mouth and nose covering in public at all times, and (4) completely isolating if exposed to COVID-19. All participants viewed four similarly-worded recommendations—but were randomly assigned to view either a loss- or gain-framed message. To examine whether our conclusions generalize across multiple variants of framed messages, we created three different versions of each frame (see Wells & Windschitl, 1999, for more information on the importance of this stimulus sampling approach). Thus, the experiment took the form of a 2 (Framing: gain, loss) x 3

(Version: Version 1, Version 2, Version 3) between-subjects factorial design, featuring the following messages:

- *Gain/Version 1*: "There is so much to gain. If you practice these four steps, you can protect yourself and others."
- *Gain/Version 2*: "You have so much to gain. You can protect yourself and others if you practice these four steps."
- *Gain/Version 3*: "There is so much to gain. Practicing these four steps can help you stay healthy and protect the health of others."
- *Loss/Version 1*: "There is so much to lose. If you do not practice these four steps, you can endanger yourself and others."
- *Loss/Version 2*: "You have so much to lose. You can endanger yourself and others if you do not practice these four steps."
- *Loss/Version 3*: "There is so much to lose. You can get sick and endanger the health of others if you do not practice these four steps."

The four recommendations and dependent variables were displayed for all participants, with the message frame and version type varied by condition. The manipulated message appeared at the top of the pages displaying each recommendation and instructions when completing the outcome variables.

Manipulation check. At the end of the survey, participants completed a manipulation check. We asked participants which of the following phrases, if any, they recalled reading during the survey: (a) There is so much to gain. You can stay healthy and protect others by...; (b) There is so much to lose. You can avoid losing your health and avoid endangering others by..."; or (c) neither. Exact wording varied to match the precise wording across the six conditions.

Dependent variables. After reading the four recommendations (with message framing varied by condition), participants completed three self-report questionnaires: behavioral intentions to follow guidelines to prevent COVID-19 transmission, attitudes toward COVID-19 prevention policies, and self-reported anxiety (described below). Afterwards, participants completed a behavioral measure, wherein they indicated whether they would be interested in learning more information about safe practices regarding COVID-19 (and were thus directed to the WHO website). Full wording of all items are presented in Table 2. While the questions themselves were identical across conditions, participants received different instructions depending on their randomly-assigned condition. For example, for the behavioral intention questionnaire, participants in the gain/version 1 condition saw: "Stay healthy and protect others. There is so much to gain. We are interested in how you yourself will respond in the coming week in order to stay healthy and protect others." Participants in the loss/version 1 condition saw: "Avoid losing your health and avoid endangering others. We are interested in how you yourself will respond in the coming week in order to avoid losing your health and avoid endangering others." The presentation order of the dependent variables was held constant for all participants.

For the outcome variables, we created ad-hoc face-valid measures and relied on exploratory analyses to assess internal consistency and convergent validity (see *Results* and *Supplementary Information (SI)*).[4] Participants first indicated their intentions to engage in a variety of COVID-19 preventative behaviors (adapted from WHO recommendations at the time of survey launch in Spring 2020). Specifically, participants indicated how likely they were to: (1) stay at home at all times unless absolutely necessary, (2) avoid all shops other than necessary

[4] Unfortunately, due to the time pressure to launch this international data collection effort at the onset of the global pandemic, we did not have time to pretest the stimuli for the study.

ones (such as for food), (3) wear a mouth and nose covering (such as a mask) in public at all times, and (4) completely isolate themselves if they think they have been exposed to COVID-19. The four questions were presented in a randomized order and all responses were on a 7-point scale (1 = Extremely unlikely to 7 = Extremely likely).

Of note, we observed an unexpected J-shaped distribution in behavioral intentions—wherein a large majority of participants indicated very strong intentions to engage in protective behaviors (M = 6.47, SD = 0.91 on a 7-point scale). In the *SI*, we discuss potential explanations for, and additional analyses regarding, the restriction of range. Despite the restriction of range (and thus smaller-than-expected variation in the measure), behavioral intentions were still correlated with other variables in the convergent validity analyses (rs from .04 - .35; described in *Results* below). Furthermore, we did not observe a restriction of range in the other continuous outcomes: attitudes about policies that empower individuals (M = 3.46, SD = 1.93 on a 7-point scale), attitudes about policies that extend government power (M = 5.67, SD = 1.31 on a 7-point scale), and anxiety (M = 2.44, SD = 1.17 on a 5-point scale). Concerns about restrictions of range also were not applicable to the measure of information seeking (25% no, 75% yes).

After responding to the behavioral intention items, participants reported their attitudes toward five statements regarding COVID-19 prevention policies. The policy attitude items focused on trade-offs between individual rights and collective security. Two statements emphasized individual rights and autonomy (e.g., “Individuals, not governments, should decide how best to act during the COVID-19 pandemic”), whereas the other three statements emphasized collective security (e.g., “Government health officials should do everything in their power to address the spread of COVID-19, even if it severely limits daily activities for citizens”).

The five questions were presented in a randomized order and all responses were on a 7-point scale (1 = Strongly disagree to 7 = Strongly agree).

Next, the survey asked participants to indicate the extent to which they felt anxious, afraid, and fearful when considering the COVID-19 health recommendations. The three questions were presented in a randomized order and all responses were on 5-point scales (1 = Not at all to 5 = Extremely).

Last, participants were asked if they would like to learn more information about COVID-19. (All participants, regardless of stated preference, received additional information about COVID-19 at the end of the study.) A one-item question asked participants: "At the end of the study today, would you like to learn the latest reliable information about COVID-19?" The dependent variable was assessed as a binary variable (Yes, No).

Ethics

All participating research groups either obtained approval from their host institution's ethics committee, indicated that their institution did not require approval to conduct this type of experiment, or indicated that the experiment was covered by a preexisting ethics approval. All participants provided informed consent.

Results

First, we report a set of preliminary analyses concerning the manipulation check, internal consistency of scales, and convergent validity among variables. Next, we report the results of our inferential analyses. Finally, we report additional exploratory analyses regarding anxiety. Data, code, materials, power simulation details, and the pre-registered analysis plan for this experiment are available at https://osf.io/m6q8f/.

Preliminary Analyses

Manipulation check. Results revealed that 73% of participants correctly identified their condition from among three different response options (gain message, loss message, or neither). In order to be conservative, and to keep with our pre-registration plan, we reported results with the full (Intent to Treat) sample even though 27% of participants did not correctly identify which treatment they received. Importantly, however, the pattern of results was similar when we restricted the sample to just the portion of the sample that passed the manipulation check (see *SI* for more information).

Internal consistency of outcome measures. Internal consistency for both the four-item behavioral intention and three-item self-reported anxiety measures was appropriate ($\alpha > .78$, average inter-item $r > .47$). The internal consistency of the five-item policy support measure, however, was lower than expected ($\alpha = .67$; average inter-item $r = .29$). Thus, per our pre-registration plan, we performed an exploratory factor analysis. This exploratory factor analysis used varimax rotation and a minimal residual factoring method to identify two distinct subgroups of items: support for (1) policies that empower individuals to make decisions about COVID-19 (two items; $\alpha = .74$; average inter-item $r = .59$), and (2) policies that extend governments' ability to stop the spread of COVID-19 (three items; $\alpha = .77$; average inter-item $r = .53$). These two scales were weakly and negatively correlated ($r = -.15$, $p < .001$), and we analyzed the two subscales separately. Our behavioral measure of information-seeking was a single item and thus internal consistency analyses are not applicable.

Convergent validity of outcome variables. We examined the extent to which our outcome measures were associated with conceptually-related variables. To do so, we (a) post-hoc identified conceptually-related variables from the pre-study general survey, and (b) examined the extent to which they were associated with the outcome variables. Notably, these general survey

items were administered before the present study (and thus were not affected by participants' experience in the study). In all cases, we observed associations in the anticipated direction (ps < .001) that ranged from very small ($|r| = .04$) to medium ($|r| = .35$) in size. For example, behavioral intentions were positively associated with the self-reported number of times that participants had recently worn a mask ($r = .28$, $p < .001$; see *SI* for more detail).

Inferential Analyses

We first modeled each outcome variable using linear (for continuous variables) or logistic (for dichotomized variables) mixed-effects regression with message framing entered as an effect-coded factor, country-level random intercepts, and country-level random slopes. For all outcomes besides behavioral intentions, country-level random slopes led to singular fits and were subsequently removed. These convergence issues provided preliminary evidence that the estimated effects of message framing on our outcomes of interest were consistent across countries. To facilitate comparisons across outcomes, we also estimated the overall message framing effects using random-effects meta-analysis. For the meta-analysis, we used Cohen's *d* as the effect size index, wherein positive values indicated higher levels of the outcome variables in the loss- (vs. gain-) framed conditions.[5]

Effects on behavioral intentions, policy support, and information seeking. Our first set of analyses tested the effect of message framing on behavioral intentions, attitudes towards two types of policies, and information seeking. Results indicated that framing messages in terms of losses vs. gains had extremely small, non-significant effects on: (1) intentions to engage in protective behavior (a 0.03 increase on a 7-point scale; $F(1, 35.17) = 2.70$, $p = .110$, $d = 0.03$,

[5] For dichotomous outcomes (i.e., information seeking), we converted log odds ratios to Cohen's *d*s (Borenstein, Hedges, Higgins, & Rothstein, 2009). Countries without at least one observation in each of the conditions were excluded from the meta-analysis.

95% CI [-0.01, 0.07], $\tau^2 = 0.005$); (2) support for policies that empower individuals to make decisions about COVID-19 (a 0.01 increase on a 7-point scale; $F(1, 15871) = 0.05$, $p = .826$, $d = 0.004$, 95% CI [-0.03, 0.04], $\tau^2 \approx 0$); (3) support for policies that extend governments' ability to stop the spread of COVID-19 (a 0.04 increase on a 7-point scale; $F(1, 15877) = 3.46$, $p = .063$, $d = 0.03$, 95% CI [0.002, 0.06], $\tau^2 \approx 0$); and (4) the probability that participants sought additional information about COVID-19 (a 1.2% point decrease; $z = -1.80$, $p = .071$, $d = -0.008$, 95% CI [-0.02, 0.004], $\tau^2 \approx 0$). Notably, the low τ^2 values suggest that the estimated effects of message framing on our outcomes of interest were consistent across countries (see Figure 2).

While we found little evidence of between-country heterogeneity in the effects of message framing on behavioral intentions, attitudes, and information seeking, we next examined whether these estimated effects were moderated by methodological features of the study, such as: (a) the version of the framed message (versions 1-3), (b) the sampling pool (panel, non-panel), and (c) the order in which participants completed the two bundled studies (present experiment first, present experiment second). To do so, we separately added each moderator-of-interest and its higher-order interaction with message framing as effect-coded factors in the mixed-effects models described above. Results did not indicate that the message framing effects interacted with any of the moderators of interest (*p*s > .138).

To probe the robustness of the estimated effects of message framing on behavioral intentions, attitudes, and information seeking, we performed exploratory *multiverse analyses* (also sometimes described as a specification-curve analysis; Simonsohn, Simmons, & Nelson,

2020; Steegen, Tuerlinckx, Gelman, & Vanpaemel, 2016).[6] The present multiverse analyses examined how 398 justifiable approaches to data processing and modeling affected our conclusions. Most approaches indicated that message framing did not impact intentions to engage in protective behavior (87% of models) or support for COVID-19-related policies (67% of models). In the scenarios where the estimated message framing effects were significant, the magnitudes were extremely small (i.e., less than a 0.06 change on a 7-point behavioral intentions measure; less than a 0.20 change in a 7-point policy support measure). Many justifiable data processing and analysis approaches did indicate that framing messages in terms of losses (vs. gains) decreased information seeking (80% of models). However, in these scenarios, the magnitude was small (i.e., less than a 4% point decrease in the probability of seeking information; see *SI* for more information).

Effects on self-reported anxiety. The next set of analyses examined whether loss-framed vs. gain-framed messages had a differential impact on self-reported anxiety. Results indicated that participants reported higher levels of anxiety after being exposed to loss- (M = 2.58, SD = 1.18) vs. gain-framed (M = 2.30, SD = 1.14) messages, $F(1, 15881) = 253.67$, $p < .001$, $d = 0.25$, 95% CI [0.21, 0.29], $\tau^2 = 0.007$. Once again, the low τ^2 value suggests that the estimated effect of message framing on anxiety was consistent across countries (see Figure 2).

To assess these anxiety results in terms of practical perspective, we estimated the association between (a) self-reported personal exposure to COVID-19 (a presumably anxiety-

[6] Such multiverse analyses acknowledge that (1) there are often many justifiable approaches to processing and modeling data, (2) justifiable differences in the processing and modeling of data can change the inferences one might draw from the data, (3) examining different data processing and modeling approaches helps probe the robustness of a set of results, and (4) reporting how different data processing and modeling approaches impact results can improve the transparency and credibility of research findings (Lebel et al.,, 2018). In the main text, we describe the results of multiverse analysis models that converged. Nevertheless, we describe the results of additional analytic approaches that yielded model convergence issues in the *SI*.

producing event that was measured as a binary variable in the pre-study survey), and (b) experienced anxiety after the framing manipulation. The estimated effect of message framing on anxiety was nearly 1.5 times the size of the estimated association between actual exposure to COVID-19 and anxiety (which was associated with a 0.20 increase on the 5-point anxiety measure). Thus, in practical terms, the effect of message framing on anxiety appeared substantial. That being said, comparing the size of these relationships could be complicated by the fact that people who were exposed to COVID-19 and avoided negative outcomes could have decreased (rather than increased) anxiety.[7] Future research is needed to further benchmark the relative size of loss- vs. gain-framing on self-reported anxiety.

Similar to the analyses of the other outcome variables, we next examined whether the estimated effect of framing on anxiety was moderated by methodological features of the study. Results did not indicate that the effect of message framing on anxiety was moderated by the version of the message ($p = .368$) or the sampling pool ($p = .799$). This implies that the underlying construct itself (loss vs. gain framing), rather than the particular wording associated with any instantiation of it, drives the effects. Inconsequentially, the message framing effect was moderated by the order in which participants completed the study, $F(1, 15880) = 4.35$, $p = .037$. Follow-up contrasts indicated that the effect of framing on anxiety was slightly larger when participants completed our study second (where message framing led to a 0.32 shift on the 5-point anxiety measure) vs. first (where message framing led to a 0.24 shift in the anxiety measure). It could be the case that completing the other study first (which also asked participants to read COVID-19 health messaging) heightened attention to COVID-19, and thus magnified the anxiety effects observed in the present data. Importantly, however, the observed effect of

[7] We thank the review team for this point.

message framing on anxiety was significant regardless of the order of the studies (both *p*s < .0001) and the moderation by study order was relatively inconsequential in size compared to the overall effect of loss- vs. gain-framing.

Finally, we conducted a multiverse analysis to examine how 162 justifiable approaches to data processing and modeling affected our conclusions about anxiety. Strikingly, *all* 162 justifiable data processing and modeling approaches examined in the multiverse analysis indicated that framing messages in terms of losses (vs. gains) significantly increased anxiety (all *p*s < .001; all mean differences > 0.21). These results suggest that the inferences regarding the effects of message framing on anxiety are robust across a wide variety of justifiable analytic decisions.

Additional analyses regarding pre-study worry

Our analyses to this point have examined anxiety in response to the framed messages. However, the pre-study survey also included two items assessing anxiety-relevant states: worry regarding one's physical and emotional health. Both items were moderately correlated (r = .58) and answered on 5-point scales (1 = Not at all worried, 5 = Extremely worried). For simplicity, we averaged the two items and refer to this combined index as pre-study worry. (Statistical significance of results remains unchanged when we analyze the two items separately.)

In order to be maximally comprehensive, we conducted a set of exploratory (post-hoc) analyses concerning whether loss (vs. gain) framing would exert differential effects on any of the four outcome variables for individuals higher (vs. lower) on pre-study worry. That is, we tested whether pre-study worry moderated any of the message framing effects documented above. To test this possibility, we modeled each outcome variable with (a) frame entered as an effect-coded factor, (b) pre-study worry entered mean-centered, (c) their higher-order interaction, and (d)

random intercepts for country. For behavioral intentions, policy support, and post-study anxiety, we used linear mixed-effect models; for information seeking, we used a logistic mixed-effect model. For all outcomes, there was not a significant interaction between message framing and pre-study worry ($p > .43$), suggesting that the effect of message framing did not depend on levels of pre-study worry.

Summary. While framing messages in terms of loss (versus gain) conferred little-to-no measured benefits, such loss framing exerted moderately-sized and extremely consistent costs in terms of increased state anxiety (see Figure 2). Moreover, the results for anxiety appeared consistent across countries, message wording, sampling pool, study order, and analytic choices—increasing confidence about generalizability.

Discussion

The COVID-19 pandemic (and its aftermath) highlights a critical need to effectively communicate health information to the global public. It also highlights the importance of rapidly testing psychological interventions on a global scale. We experimentally tested the differential effects of framing messages in terms of losses vs. gains on COVID-19-related behavioral intentions, policy attitudes, information seeking, and experienced anxiety.

Results indicated that message framing had little-to-no measurable benefit for behavioral intentions, policy attitudes, or information seeking, but did have a significant emotional cost in terms of increased anxiety. These results were consistent across 84 countries, three variations of the message framing wording, across semi-representative and non-representative samples, across survey order, and across 560 data processing and analytic choices. Taken together, these results imply that the conceptual difference between loss- and gain-framing accounts for its effect on

anxiety (rather than any particular phrasing of stimuli, culturally specific connotation, methodological feature, or data analytic approach).

The effect of message framing on anxiety when reading loss- vs. gain-framed health recommendations was nearly 1.5 times the size of the association between self-reported personal exposure to COVID-19 and anxiety when reading the health messages, revealing the important practical impact of loss framing. Because heightened anxiety has been associated with major causes of morbidity and mortality, diminished coping abilities, and neuroendocrine dysregulation, the heightened levels of anxiety under loss-framed messages represent an important outcome. Of course, the anxiety triggered in our study was relatively mild compared to acute levels associated with clinically-diagnosable anxiety disorders. Indeed, the average post-treatment anxiety was quite low in both framing conditions (2.58/5 and 2.30/5 for the loss and gain conditions, respectively). Nevertheless, public health communicators should benefit from learning that gain-framed messages COVID-19 messages are at least as effective as loss-framed messages in their impact on behavioral intentions, policy attitudes, and information seeking behavior--but induce significantly less anxiety at a population level.

While some commentators have urged organizations to "scare people" when communicating COVID-19 health information (e.g., in the *New York Times*; Rosenthal, 2020), the present results cast doubt on the wisdom of reminding people how much they stand to lose during the pandemic. Despite eliciting higher levels of anxiety, loss-framed (vs. gain-framed) messages did not meaningfully change behavioral intentions, information seeking behavior, or policy attitudes in the context of COVID-19. Admittedly, literature on fear appeals is nuanced (e.g., Kok et al., 2018; Peters et al., 2018). But because the present study is the largest and most globally-representative study ever conducted on message framing and anxiety, there is

compelling evidence that triggering anxiety through COVID-19 messaging does not improve behavioral intentions, attitudes, or actual behavior—at least in this context.

More generally, the present results contribute to a nascent literature broadening the scope of behavioral decision (nudge-style) interventions beyond strictly behavioral outcomes. Fields such as public health and health psychology have long considered affective states to be crucial outcome variables in and of themselves (e.g., Epel et al., 2018; Mikels et al., 2016; Taylor, 2021). The field of communication has also begun to consider affect as both an outcome itself and as a mediator of behavioral outcomes (Hameleers, 2021; Wong, Harvell & Harrison, 2013; Nabi et al, 2020). In the present work, we build both on these fields, and on emerging literature in behavioral decision research (Allcott & Kessler, 2019; Haushofer, Mudida, & Shapiro, 2021; Zlatev & Rogers, 2020), to propose that emotional consequences should be considered when evaluating the costs vs. benefits of nudge-style interventions (c.f., Glaeser, 2005).[8] In the present case, under an expanded cost-benefit analysis that includes emotional consequences (c.f. Dukes et al., 2021), messages framed in terms of gains appear superior (for related discussion, see Loewenstein & O'Donoghue, 2006).

Limitations and Future Directions

Despite its global scope, the present experiment features some methodological limitations. First, it remains unknown whether sustained framing interventions (rather than single shot) could have stronger effects. Given that the measures rely on self-report and that the anxiety effects are measured immediately (rather than over time), it is unclear to what extent such effects would persist outside of the specific experimental context. Second, the behavioral intentions variable exhibited restriction of range, which may have contributed to diminishing a message

[8] This idea is not new. Economist Jeremy Bentham's original (1879) conception of utility emphasized happiness as "the greatest good" (for discussion, see Lerner, Dorison, & Klusowski, 2022).

framing effect. However, behavioral intentions had sufficient variance to correlate with other expected predictors in the study (e.g., self-reported mask wearing), providing some evidence that the range was not sufficiently limited to preclude the detection of meaningful relationships. Moreover, we did not observe restrictions of range on policy attitudes and information seeking (variables that we similarly did not find affected by message framing).

A few future directions merit note. Most centrally, future research is needed to understand the lack of differential effects of loss vs. gain message framing on behavioral intentions, policy support, and information seeking. Perhaps the strongest explanation for why loss-gain framing shows substantial effects in other contexts—but not here—is because the present set-up differs substantially from classic loss-gain work on risk preferences. In canonical risk preference paradigms (e.g., Dorison & Heller, 2022; Kahneman & Tversky, 1979; Ruggeri et al., 2020; Tversky & Kahneman, 1991), participants are confronted with choices between a sure option and a risky gamble. Importantly, probabilities for each option are provided. Prior research identifies a robust effect that generalizes across contexts: people are typically risk-averse when the choice options are presented as losses but risk-seeking when choice options are presented as gains. Our paradigm intentionally deviated from this large body of research on loss-gain framing effects on risk preferences. In the present paradigm, probabilities were unknown and participants were not presented with a choice between a sure option and a risky gamble because it would have been unrealistic to provide known probabilities about the pandemic. Thus, the present paradigm follows more directly from research in the health psychology literature that compares health actions associated with gains (e.g., wearing sunscreen to clear skin) vs. inaction associated with losses (e.g., not wearing sunscreen to skin cancer). This literature has yielded mixed results (Rothman & Salovey, 1997; Rothman & Sheeran, 2021) for the effects of framing,

suggesting that key moderators remain to be identified (for reviews, see Levin, Schneider, & Gaeth, 1998; van't Riet et al., 2016).

There is at least one study, however, that used a reasonably comparable paradigm but which found divergent results: Abhyankar, O'Connor, and Lawron (2008) found a loss-frame advantage on intentions to obtain the MMR vaccine for one's child. It could be the case that the effects of loss- vs. gain- message framing differ when assessing health intentions for oneself vs. another person, especially when the other person is a child under one's care. Additional possibilities include that there may be something specific about an unfolding (and highly uncertain) pandemic that blunted such effects or that the gain/loss manipulations were weaker in the present study.

Four additional future directions merit note. First, following from the point above, while we found limited heterogeneity by country, future research could explore heterogeneity in the effect of message framing across other dimensions (e.g., such as the tightness vs. looseness of the culture; Gelfand et al., 2021; Uskul, Sherman, & Fitzgibbon, 2009). Indeed, it could be the case that our operationalization of country was limited by the manner in which we sampled participants. Second, while we also found limited heterogeneity in the effect of message framing across the different versions of loss and gain framing, future research could examine additional versions of these messages (e.g., self- vs. other-focused messages). Third, while we conducted an initial set of analyses with the pre-study survey (focused on pre-study worry), future research could test a more comprehensive set of hypotheses using these data. Finally, while the present work expanded the scope of nudge-style outcomes beyond behavior to include anxiety, future research is needed to further integrate emotional outcomes (both immediate and long-term) into cost-benefit calculations for implementing nudge-style interventions (e.g., framing). Not only

does the subjective experience of emotion matter in and of itself (anxiety creates suffering) but also the myriad effects of emotion on health (e.g., Emdin et al., 2016; Kubzansky & Kawachi, 2020) and health behavior (e.g., Dorison et al., 2020; Ferrer et al., 2020) matter as well.

Conclusion

In a global experiment spanning 84 countries and nearly 16,000 participants, loss vs. gain message framing had a widespread effect on self-reported anxiety while exerting no notable effects on cognitive and behavioral outcomes related to the COVID-19 pandemic. To the extent that policymakers and health organizations aim to minimize anxiety during a pandemic that has engendered high levels of stress and illness, our results provide evidence that gain framing may be superior to loss framing in communicating COVID-19 prevention messages. The results hold theoretical implications for multiple literatures, including research on health message framing, social influence, affective science, and public policy. More generally, the results underscore the lesson that, for policymakers and health organizations, large-scale collaborations can provide empirical answers to global questions (Coles et al. 2022; Forscher et al., in press), freeing communicators from having to rely on either intuition or speculation about applications of theory in particular contexts (c.f., Haushofer & Metcalf, 2020).

References

Abhyankar, P., O'connor, D. B., & Lawton, R. (2008). The role of message framing in promoting MMR vaccination: Evidence of a loss-frame advantage. *Psychology, Health and Medicine*, *13*(1), 1-16.

Aknin, L., De Neve, J. E., Dunn, E., Fancourt, D., Goldberg, E., Helliwell, J., ... & Amour, Y. B. (2021). A review and response to the early mental health and neurological consequences of the COVID-19 pandemic. PsyArXiv [Preprint]. https:/doi.org/10.31234/osf.io/zw93g. Accessed 7 May 2021.

Allcott, H., & Kessler, J. B. (2019). The welfare effects of nudges: A case study of energy use social comparisons. *American Economic Journal: Applied Economics*, *11*(1), 236-276.

American Psychological Association (2021), Anxiety. https://www.apa.org/topics/anxiety/. Accessed 3 May 2021.

Arslan, R. C., Walther, M. P., & Tata, C. S. (2020). formr: A study framework allowing for automated feedback generation and complex longitudinal experience-sampling studies using R. *Behavior Research Methods*, *52*(1), 376-387.

Bauer, P. J. (2019). Expanding the reach of psychological science. *Psychological Science, 31*(1), 3-5.

Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2009). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods*, *1*(2), 97-111.

Centers for Disease Control and Prevention (2021). Public Service Announcement. https://www.google.com/search?q=stay+home+save+lives&rlz=1C1GCEB_enUS850US

887&oq=stay+home+save+lives. Accessed 4 May 2021.

Coles, N. A., Hamlin, J. K., Sullivan, L. L., Parker, T. H., & Altschul, D. (2022). Build up big-team science. *Nature,* 601, 505-507.

de Bruin, W. B., & Bostrom, A. (2013). Assessing what to address in science communication. *Proceedings of the National Academy of Sciences*, *110*(Supplement 3), 14062-14068.

Dorison, C.A. et al. (2020). Sadness, but not all negative emotions, heightens addictive substance use. *Proceedings of the National Academy of Sciences*, 117 (2), 943-949.

Dorison, C. A., & Heller, B. H. (2022). Observers penalize decision makers whose risk preferences are unaffected by loss–gain framing. *Journal of Experimental Psychology: General.* Advance online publication.

Dorison, C. A., Klusowski, J., Han, S., & Lerner, J. S. (2020). Emotion in organizational judgment and decision making. *Organizational Dynamics*, *49*(1), e100702.

Downs, J. S. (2014). Prescriptive scientific narratives for communicating usable science. *Proceedings of the National Academy of Sciences*, *111*(Supplement 4), 13627-13633.

Dukes, D., Abrams, K., Adolphs, R., Ahmed, M. E., Beatty, A., Berridge, K. C., ... & Sander, D. (2021). The rise of affectivism. *Nature Human Behaviour, 5*(7), 816-820.

Emdin CA, Odutayo A, Wong CX, Tran J, Hsiao AJ, Hunn BH. Meta-analysis of anxiety as a risk factor for cardiovascular disease. *American Journal of Cardiology*. 2016; 118:511–519. doi: 10.1016/j.amjcard.2016.05.041

Epel, E. S., Crosswell, A. D., Mayer, S. E., Prather, A. A., Slavich, G. M., Puterman, E., & Mendes, W. B. (2018). More than a feeling: A unified view of stress measurement for population science. *Frontiers in Neuroendocrinology*, *49*, 146-169.

Ferrer, R.A., Taber, J.M., Sheeran, P., Bryan, A.D., Cameron, L.D., Peters, E., Lerner, J.S., Grenen, E., & Klein, W.M.P. (2020). The Role of Incidental Affective States in Appetitive Risk Behavior: A Meta-Analysis. *Health Psychology, 39*(12), 1109-1124.

Forscher, P. S., Paris, B., Primbs, M., & Coles, N. (2020). PSACR: The Psychological Science Accelerator's COVID-19 Rapid-Response Project. PsyArXiv [Preprint]. https://psyarxiv.com/x976j. Accessed 13 August 2021.

Forscher, P. S., Wagenmakers, E., Coles, N. A., Silan, M. A., Dutra, N. B., Basnight-Brown, D., & IJzerman, H. (in press). The benefits, barriers, and risks of big team science. *Perspectives on Psychological Science*.

Gallagher, K. M., & Updegraff, J. A. (2012). Health message framing effects on attitudes, intentions, and behavior: A meta-analytic review. *Annals of Behavioral Medicine*, *43*(1), 101-116.

Gelfand, M. J., Jackson, J. C., Pan, X., Nau, D., Pieper, D., Denison, E., ... & Wang, M. (2021). The relationship between cultural tightness–looseness and COVID-19 cases and deaths: A global analysis. *The Lancet Planetary Health*, *5*(3), e135-e144.

Glaeser, E. L. (2005). Paternalism and psychology. *NBER working paper.* https://www.nber.org/system/files/working_papers/w11789/w11789.pdf. Accessed 7 May 2021.

Gosling, C. J., Caparos, S., & Moutier, S. (2020). The interplay between the importance of a decision and emotion in decision-making. *Cognition and Emotion*, *34*(6), 1260-1270.

Hameleers, M. (2021). Prospect theory in times of a pandemic: The effects of gain versus loss framing on risky choices and emotional responses during the 2020 coronavirus outbreak–

Evidence from the US and the Netherlands. *Mass Communication and Society*, *24*(4), 479-499.

Hartley, C. A., & Phelps, E. A. (2012). Anxiety and decision-making. *Biological Psychiatry*, *72*(2), 113-118.

Haushofer, J., & Metcalf, C. J. E. (2020). Which interventions work best in a pandemic? *Science*, *368*(6495), 1063-1065.

Haushofer, J., Mudida, R., & Shapiro, J. (2021). The comparative impact of cash transfers and a psychotherapy program on psychological and economic well-being. *SSRN [preprint]*. https:/doi.org/10.2139/ssrn.3759722. Accessed 7 May 2021.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010a). Most people are not WEIRD. *Nature*, *466*(7302), 29.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010b). We agree it's WEIRD, but is it WEIRD enough? *Behavioral and Brain Sciences*, *33*(2-3), 61-83.

Kahneman, D., & Tversky, A. (1979). Prospect theory: an analysis of decision under risk. *Econometrica*, *47*(2), 263-291.

Kok, G., Peters, G. J. Y., Kessels, L. T., Ten Hoor, G. A., & Ruiter, R. A. (2018). Ignoring theory and misinterpreting evidence: The false belief in fear appeals. *Health Psychology Review*, *12*(2), 111-125.

Kubzansky, L. & Kawachi, I. (2020). Going to the heart of the matter: do negative emotions cause coronary heart disease. *Journal of Psychosomatic Research*, 48 (4–5), 323-337. https://doi.org/10.1016/S0022-3999(99)00091-4.

LeBel, E. P., McCarthy, R. J., Earp, B. D., Elson, M., & Vanpaemel, W. (2018). A unified

framework to quantify the credibility of scientific findings. *Advances in Methods and Practices in Psychological Science*, *1*(3), 389-402.

Lerner, J.S., Dorison, C.A., & Klusowski, J., (2022). How do emotions affect decision making? *Handbook of Emotion Theory.* Routledge.

Lerner, J. S., Li, Y., Valdesolo, P., & Kassam, K. S. (2015). Emotion and decision making. *Annual Review of Psychology, 66,* 799-823

Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All frames are not created equal: A typology and critical analysis of framing effects. *Organizational Behavior and Human Decision Processes*, 76(2), 149-188.

Levine, G. N., Cohen, B. E., Commodore-Mensah, Y., Fleury, J., Huffman, J. C., Khalid, U., ... & American Heart Association Council on Clinical Cardiology; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular and Stroke Nursing; and Council on Lifestyle and Cardiometabolic Health. (2021). Psychological health, well-being, and the mind-heart-body connection: A scientific statement from the American Heart Association. *Circulation*, *143*(10), e763-e783.

Loewenstein, G., & O'Donoghue, T. (2006). "We can do this the easy way or the hard way": Negative emotions, self-regulation, and the law. *The University of Chicago Law Review*, *73*(1), 183-206.

Mikels, J. A., Shuster, M. M., Thai, S. T., Smith-Ray, R., Waugh, C. E., Roth, K., … Stine-Morrow, E. A. (2016). Messages that matter: Age differences in affective responses to framed health messages. *Psychology and Aging*, 31, 409-414.

Moshontz, H., Campbell, L., Ebersole, C. R., IJzerman, H., Urry, H. L., Forscher, P. S., ... &

Chartier, C. R. (2018). The Psychological Science Accelerator: Advancing psychology through a distributed collaborative network. *Advances in Methods and Practices in Psychological Science*, *1*(4), 501-515.

Nabi, R. L., Walter, N., Oshidary, N., Endacott, C. G., Love-Nichols, J., Lew, Z. J., & Aune, A. (2020). Can emotions capture the elusive gain-loss framing effect? A meta-analysis. *Communication Research*, *47*(8), 1107-1130.

ó Hartaigh, B., Loerbroks, A., Thomas, G. N., Engeland, C. G., Hollands, M. A., Fischer, J. E., & Bosch, J. A. (2012). Age-dependent and-independent associations between depression, anxiety, DHEAS, and cortisol: From the MIPH Industrial Cohort Studies (MICS). *Psychoneuroendocrinology*, *37*(7), 929-936.

Otte, C., Hart, S., Neylan, T. C., Marmar, C. R., Yaffe, K., & Mohr, D. C. (2005). A meta-analysis of cortisol response to challenge in human aging: Importance of gender. *Psychoneuroendocrinology*, *30*(1), 80-91.

Peters, G. J. Y., Ruiter, R. A., Ten Hoor, G. A., Kessels, L. T., & Kok, G. (2018). Towards consensus on fear appeals: A rejoinder to the commentaries on Kok, Peters, Kessels, ten Hoor, and Ruiter (2018). *Health Psychology Review*, *12*(2), 151-156.

Rosenthal, E. (2020, December 12). It's time to scare people about Covid. *New York Times.*, https://www.nytimes.com/2020/12/07/opinion/covid-public-health-messaging.html. Accessed 7 May 2021.

Rothman, A. J., Desmarais, K. J., & Lenne, R. L. (2020). Moving from research on message framing to principles of message matching: The use of gain-and loss-framed messages to promote healthy behavior. In *Advances in motivation science* (Vol. 7, pp. 43-73).

Elsevier.

Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate healthy behavior: the role of message framing. *Psychological Bulletin*, *121*(1), 3.

Rothman, A. J., & Sheeran, P. (2021). The operating conditions framework: Integrating mechanisms and moderators in health behavior interventions. *Health Psychology*, *40*(12), 845.

Ruggeri, K., Alí, S., Berge, M. L., Bertoldo, G., Bjørndal, L. D., Cortijos-Bernabeu, A., ... & Folke, T. (2020). Replicating patterns of prospect theory for decision under risk. *Nature Human Behaviour*, *4*(6), 622-633.

Simonsohn, U., Simmons, J. P., & Nelson, L. D. (2020). Specification curve analysis. *Nature Human Behaviour*, *4*(11), 1208-1214.

Steegen, S., Tuerlinckx, F., Gelman, A., & Vanpaemel, W. (2016). Increasing transparency through a multiverse analysis. *Perspectives on Psychological Science*, *11*(5), 702-712.

Sunstein, C. R., & Thaler, R. H. (2003). Libertarian paternalism is not an oxymoron. *The University of Chicago Law Review, 70*(4), 1159-1202.

Taylor, S. E. (2021). *Health Psychology.* McGraw Hill.

Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness.* Penguin.

Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, *106*(4), 1039-1061.

Uskul, A. K., Sherman, D. K., & Fitzgibbon, J. (2009). The cultural congruency effect: Culture, regulatory focus, and the effectiveness of gain-vs. loss-framed health messages. *Journal*

of Experimental Social Psychology, 45(3), 535-541.

Van Bavel, J. J., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., ... & Willer, R. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behaviour*, *4*(5), 460-471.

Van't Riet, J., Cox, A. D., Cox, D., Zimet, G. D., De Bruijn, G. J., Van den Putte, B., ... & Ruiter, R. A. (2016). Does perceived risk influence the effects of message framing? Revisiting the link between prospect theory and message framing. *Health Psychology Review*, 10(4), 447-459.

Wang, K., Goldenberg, A., Dorison, C. A., Miller, J. K., Uusberg, A., Lerner, J. S., ... & Isager, P. M. (2021). A multi-country test of brief reappraisal interventions on emotions during the COVID-19 pandemic. *Nature Human Behaviour, 5*(8), 1089-1110.

Wells, G. L., & Windschitl, P. D. (1999). Stimulus sampling and social psychological experimentation. *Personality and Social Psychology Bulletin*, *25*(9), 1115-1125.

Wong, N. C., Harvell, L. A., & Harrison, K. J. (2013). The unintended target: assessing nonsmokers' reactions to gain-and loss-framed antismoking public service announcements. *Journal of health communication*, *18*(12), 1402-1421.

World Health Organization (2021). Depression and other common mental disorders global health estimates. Accessed 7 May 2021.

Xu, P., Gu, R., Broster, L. S., Wu, R., Van Dam, N. T., Jiang, Y., ... & Luo, Y. J. (2013). Neural basis of emotional decision making in trait anxiety. *Journal of Neuroscience*, 33(47), 18641-18653.

Zlatev, J. J., & Rogers, T. (2020). Returnable reciprocity: Returnable gifts are more effective

than unreturnable gifts at promoting virtuous behaviors. *Organizational Behavior and Human Decision Processes*, *161*, 74-84.

Figure 1. An example of a public service announcement from the CDC. This public service announcement used gain-framed messages to encourage mask-wearing (image from May, 2021).

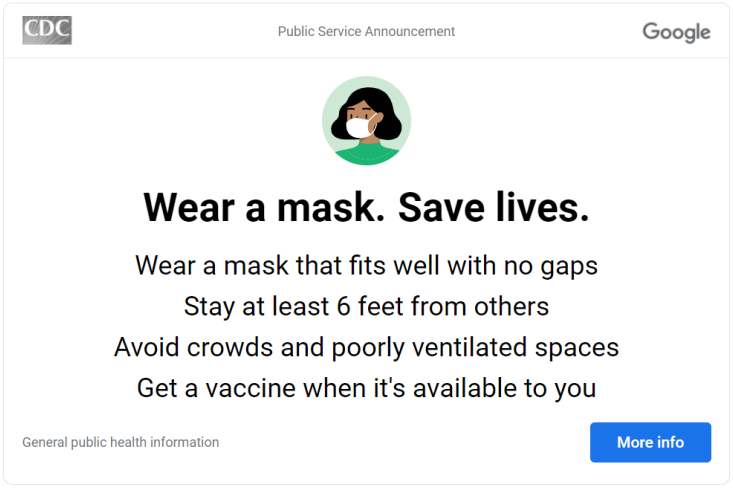

Figure 2. Loss-framed vs. gain-framed messages regarding COVID-19 influenced anxiety but not behavioral intentions, policy support, or information seeking. Cohen's *d* was used as the effect size, with positive values indicating higher levels of the outcome variable in the loss-framed vs. gain-framed condition. Dots and bars represent the effect size estimates and 95% confidence intervals respectively. Country-level effect size estimates are denoted in black and overall effect size estimates are denoted in yellow. Country names are denoted by their International Organization for Standardization codes. To improve the viewability of the x-axis, 40 countries with fewer than 30 participants per group (i.e., relatively wide error bars) are removed from the plot. Nevertheless, these countries are still included in the overall effect size estimates.

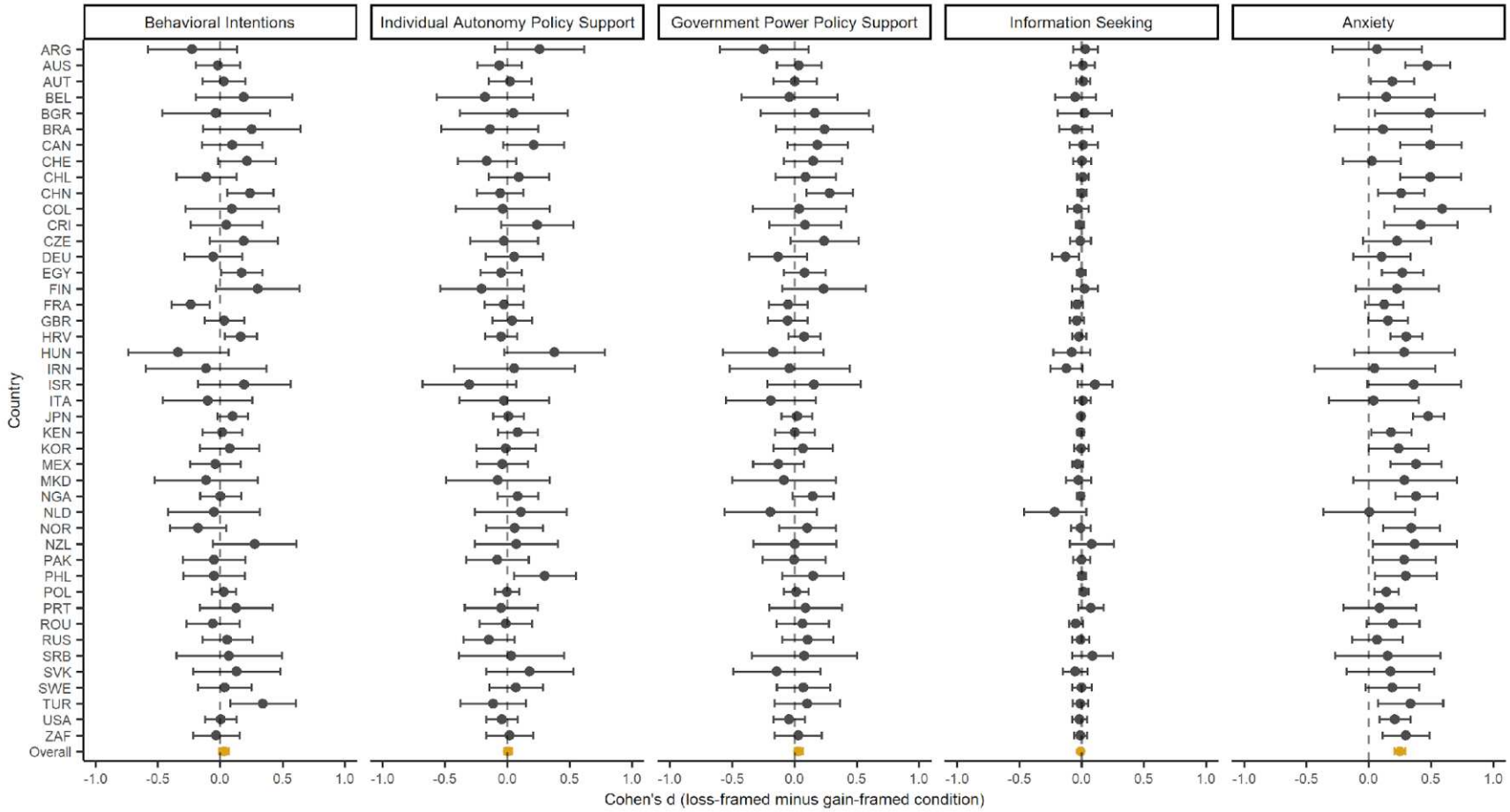

Table 1. Questions, response format, and relevant descriptive statistics of measures in the pre-study survey

Question text	Response format	Relevant descriptives
In the past seven days, how many times did you go out of your home or residence?	Open numeric	M = 7.42, SD = 7.1
In the past seven days, what were your reasons for going out of your home or residence? Please check all that apply.	Multiple choice	Work: 41%; Health visits: 16%; Groceries: 70% Non-essential goods: 21%; Visiting family and friends: 34%; Outdoor physical activity: 32%; Animal care: 12%; Other: 15
Of the places that you visited in the past seven days, how many would you characterize as being crowded? Crowded here means that you could not maintain a 6-feet/2-meter distance between you and other people.	Numeric (1 = None of them; 6 = All of them)	M = 3.32, SD = 1.26
When you have gone out in the past seven days, how often have you worn a mask for your face?	Numeric (1 = Never; 6 = All the time)	M = 4.44, SD = 1.64
If you wore a mask when going outside your home, what type did you most frequently wear?	Forced choice	Cloth mask: 39%; Surgical mask: 33%; N95/FFP1/P100/other respirator: 6%; Homemade/makeshift mask: 4%; Unsure: 2%; None: 13%; Not applicable: 4%

In the past seven days, where have you most frequently directed your coughs and sneezes?	Forced choice	Air: 4%; Palms: 8%; Tissue/handkerchief: 10%; Elbow: 42%; Mask: 9%; Not applicable: 28%
Different cities and regions around the world are placing different levels of restrictions on their residents to slow the spread of COVID-19. Which of these options best describes the restrictions that are currently in place in your area?	Forced choice	Total lockdown: 12%; Partial lockdown: 60%; No lockdown: 28%
How difficult do you find the level of restrictions in your area to manage?	Numeric (1 = Not at all difficult, 5 = Extremely difficult)	M = 2.24, SD = 1.12
I live in a country where the central government provides honest and helpful guidance about issues related to public health.	Numeric (1 = Strongly disagree, 7 = Strongly agree)	M = 4.67, SD = 1.91
I live in a city or region where the local government provides honest and helpful guidance about issues related to public health.	Numeric (1 = Strongly disagree, 7 = Strongly agree)	M = 4.74, SD = 1.78
To what degree are you satisfied or dissatisfied with the current policies of your national government to slow the spread of COVID-19?	Numeric (1 = Extremely dissatisfied, 7 = Extremely satisfied)	M = 4.24, SD = 1.72
Have you ever been tested for COVID-19?	Forced choice	Yes, tested positive: 1%; Yes, tested negative, but diagnosed positive: 1%; Yes, tested negative, not diagnosed positive: 7%; No, diagnosed positive: 3%; No: 88%

Are you currently self-isolating due to flu-like or cold-like symptoms?	Forced choice	Yes: 5%; No: 95%
To the best of your knowledge, have you been exposed to anyone known or suspected of having COVID-19 within the past two weeks?	Forced choice	Yes: 7%; No: 93%
How confident are you about your understanding of how COVID-19 spreads?	Numeric (1 = Not at all confident, 5 = Extremely confident)	M = 3.6, SD = 1
Based on your current daily routine, how confident are you that you can prevent yourself from catching or spreading COVID-19?	Numeric (1 = Not at all confident, 5 = Extremely confident)	M = 3.32, SD = 1.05
How worried are you that your physical well-being will get worse over the next two weeks?	Numeric (1 = Not at all worried, 5 = Extremely worried)	M = 1.99, SD = 1.08
How worried are you that your emotional well-being will get worse over the next two weeks?	Numeric (1 = Not at all worried, 5 = Extremely worried)	M = 2.23, SD = 1.24
How did you receive this survey?	Forced choice	Research agency: 20%; University pool: 29%; Friends or family: 17%; Social media: 27%; Other: 7%
How would you describe your current employment?	Forced choice	Employed with current income: 46%; Employed without current income: 6%; Not employed with current

		income: 15%; Not employed without current income: 32%
If you are employed, would you describe your current employment as providing an essential service during the pandemic? Essential services include roles for which interruptions would pose a danger to community health and safety.	Forced choice	Yes: 21%; No: 36%; Not employed: 43%
How old are you, in years?	Open numeric	M = 33.59, SD = 14.51
What is your gender?	Forced choice	Female: 62%; Male: 37%; Other: 0%; Decline: 0%
What is the highest degree or level of school you have completed? If currently enrolled, please indicate highest level received.	Forced choice	Less than high school: 2%; High school: 27%; Some college: 14%; Two year degree: 16%; Four year degree: 27%; Professional degree: 12%; Doctorate: 2%; Unknown: 0%
How would you describe the community where you're staying?	Forced choice	Urban: 56%; Suburban: 28%; Rural: 16%
Including you, how many members are there in your residence or household?	Open numeric	M = 3.68, SD = 2.45
Of all the members, including you, how many have existing health conditions, such as heart or lung disease, diabetes, or a chronic illness?	Open numeric	M = 1.63, SD = 1.52

On which rung would you place yourself on this [socioeconomic status] ladder?	Numeric (1 = lowest, 10 = highest)	M = 5.76, SD = 1.8

Table 2. Outcome variables, question text, and response format for the main survey.

Outcome variable	Item	Response format
Behavioral Intentions	In the coming two weeks, if there is an order to stay at home at all times except times deemed essential, how likely are you to follow that order?	7-point scale with the following points: Extremely unlikely, moderately unlikely, slightly unlikely, neither likely nor unlikely, slightly likely, moderately likely, extremely likely
Behavioral Intentions	In the coming two weeks, if you are taking care of someone who is sick with COVID-19, how likely are you to wear a mouth and nose covering (such as a mask) in public at all times?	7-point scale with the following points: Extremely unlikely, moderately unlikely, slightly unlikely, neither likely nor unlikely, slightly likely, moderately likely, extremely likely
Behavioral Intentions	In the coming two weeks, if you notice yourself coughing and sneezing, how likely are you to wear a mouth and nose covering (such as a mask) in public at all times?	7-point scale with the following points: Extremely unlikely, moderately unlikely, slightly unlikely, neither likely nor unlikely, slightly likely, moderately likely, extremely likely

Behavioral Intentions	In the coming two weeks, if you think you may have been exposed to COVID-19, how likely are you to completely isolate yourself?	7-point scale with the following points: Extremely unlikely, moderately unlikely, slightly unlikely, neither likely nor unlikely, slightly likely, moderately likely, extremely likely
Policy support (individual autonomy)	Government health officials should allow individuals to determine how best to deal with the present COVID-19 pandemic	7-point scale with the following points: Strongly disagree, moderately disagree, slightly disagree, neither agree nor disagree, slightly agree, moderately agree, strongly agree
Policy support (individual autonomy)	Individuals, not governments, should decide how best to act during the COVID-19 pandemic	7-point scale with the following points: Strongly disagree, moderately disagree, slightly disagree, neither agree nor disagree, slightly agree, moderately agree, strongly agree
Policy support (government power)	Government health officials should authorize law enforcement to fine anyone who violates restrictions to slow the spread of COVID-19	7-point scale with the following points: Strongly disagree, moderately disagree, slightly disagree, neither agree nor disagree, slightly agree, moderately agree,

		strongly agree
Policy support (government power)	Government health officials should do everything in their power to address the spread of COVID-19, even if it severely limits daily activities for citizens	7-point scale with the following points: Strongly disagree, moderately disagree, slightly disagree, neither agree nor disagree, slightly agree, moderately agree, strongly agree
Policy support (government power)	Government health officials should decide how long social distancing practices stay in place	7-point scale with the following points: Strongly disagree, moderately disagree, slightly disagree, neither agree nor disagree, slightly agree, moderately agree, strongly agree
Anxiety	To what extent do you feel anxious when considering these recommendations?	5-point scale with the following points: not at all, slightly, moderately, very much, extremely
Anxiety	To what extent do you feel afraid when considering these recommendations?	5-point scale with the following points: not at all, slightly, moderately, very

		much, extremely
Anxiety	To what extent do you feel fearful when considering these recommendations?	5-point scale with the following points: not at all, slightly, moderately, very much, extremely
Information seeking	At the end of the study today, would you like to learn the latest reliable information about COVID-19?	binary response: yes, no