

# Improving risk and science communication: A behavioral decision research approach

**Wändi Bruine de Bruin**

Sol Price School of Public Policy

Dornsife Department of Psychology

Schaeffer Center for Health Policy and Economics

Center for Economic and Social Research

Center for Sustainability Solutions

CREATE

# Types of communications

- Platforms
  - Brochures
  - User guides
  - Websites
  - Videos
- Topics
  - Health
  - Environment
  - Energy
  - Finance



# Communication goals

- To improve public understanding
- To inform decisions
- To motivate behavior change

- Many communications are implemented without testing their effectiveness
- Communications that are tested are often found to be ineffective
  - Due to not addressing recipients need

# Behavioral decision research

## 1. Normative:

- How *should* people make decisions?

## 2. Descriptive:

- How *do* people actually make decisions?
- When and why do their decisions deviate from normative recommendations?

## 3. Prescriptive:

- How can we *help* people to make better decisions?

# 1. Difficult wording



*(Harcourt, Bruine de Bruin, Dessai & Taylor, Climatic Change, 2019;  
Wong-Parodi, Bruine de Bruin, & Canfield, Energy Policy, 2013)*

## 2. Confusing visualizations

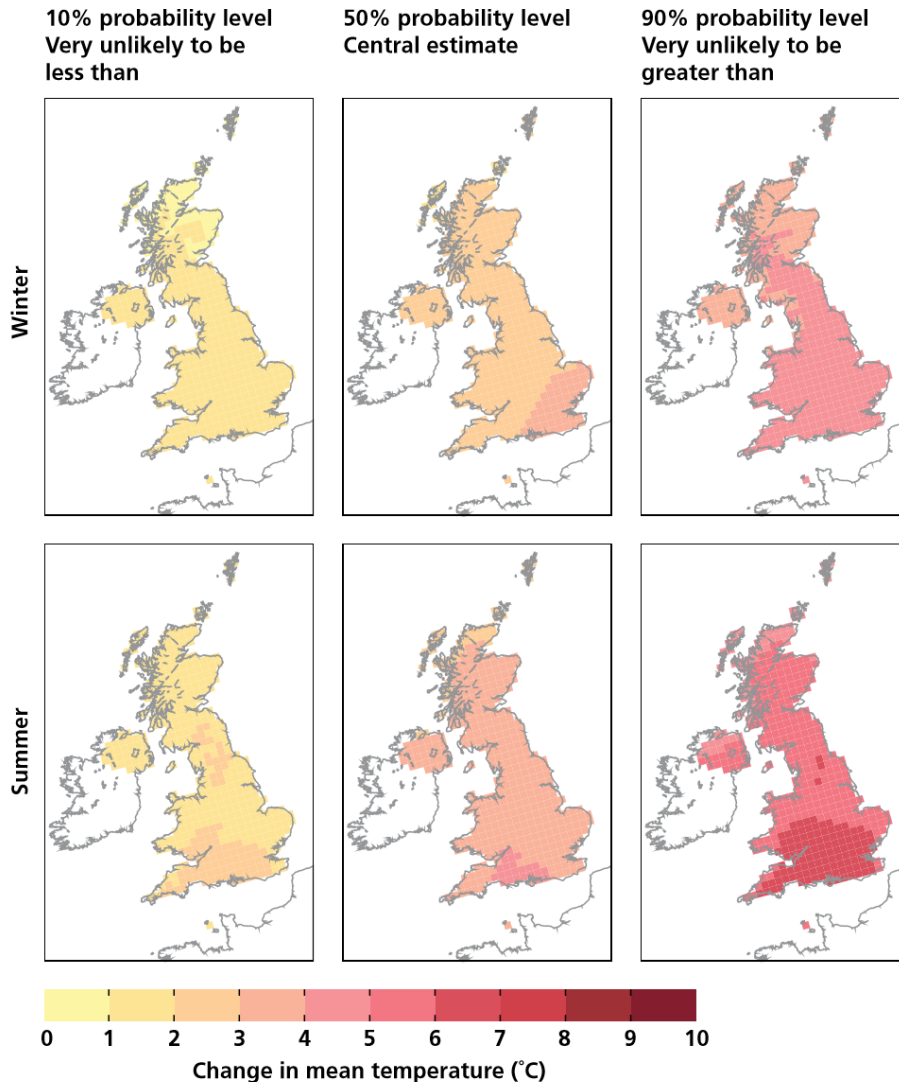


Figure 9: 10, 50 and 90% probability levels of changes to the average daily mean temperature (°C) of the winter (upper) and summer (lower) by the 2080s, under the Medium emissions scenario.

Graph design literature recommends one message per visualization

75% of our interviewed practitioners were confused about the probability levels

*(Kause, Bruine de Bruin, Fung, Taylor, & Lowe, Sustainability, 2020)*



# 3. Too much information

Department of Veterans Affairs		Research Informed Consent Form	
Version Date: 2014-08-25		Page 1 of 9	
IRB Template: 2014-05-12		VA Form 10-1086	
Participant Name:			
Study Title: Randomized Trial of Titrated Disease Management for Patients With Hypertension		Date:	
Principal Investigator: Dr. George L. Jackson, PhD, MHA		VAMC, Durham	

Please read this form carefully. It tells you important information about a **voluntary** research study. As your study doctor or study staff discusses this consent form with you, please ask him/her to explain any words or information that you do not clearly understand the information on this form. If you would like to go to Durham VAMC's Institutional Review Board, please call the res 878-6890, extension 6926.

## WHY IS THIS RESEARCH BEING RUN?

The purpose of

You are being a  
care at the Out  
Outpatient Clin  
enroll partici  
participant to b

## WHAT IS THE

You will receive  
Nurse (LPN). Re  
blood pressure  
medicines that

## WHAT PROC

- This study i  
recorded p  
you felt ab

## Baseline (first

At the first visit  
height and weig  
readings. I will  
be assigned. I  
will be told wh

## Subject Identif



Participant Name:  
Study Title: Randomized Trial of Titrated  
Principal Investigator: Dr. George L. Jackson

You may experience some pressure or  
measurements. The study intervenio  
exercise. This may lower blood sugar.  
physical activity will be minimized by a  
importantly, if the pharmacist changes  
medications and from the lowering of

Also, some of the questions we ask d  
we will skip any question that you do  
efforts will be taken to ensure that you  
you are anticipated. If you experience  
can call the study team.

## WILL I BENEFIT FROM TAKING PA

You may not personally be helped by t  
knowledge that will help others. You n  
health education.

## DOES PARTICIPATION IN THIS RES

There will be no costs to you for any o  
this research study. Some Veterans ar  
provided by VA. These co-payment re  
provided by VA that are not part of th

## WILL I RECEIVE ANY COMPENSATI

RESEARCH STUDY?  
You will be responsible travel costs to  
visits. You will be paid \$15 for comm  
compensation for participating in this  
by VA policy and may be cash reimbur  
of VA payment.

## HOW LONG WILL I BE IN THIS RESEARCH STUDY?

Over the next 18 months this study will involve four (4) in-person interviews (including today) which may last approximately 45 – 90 minutes. Depending on which group you are assigned you will receive home telephone calls either every month or every other month and possibly which may last approximately 30 to 30 minutes each. We may ask you to participate in one (1) audio-recorded phone interview for which we would call you towards the end of the study to see how you felt about your participation in this study. Time of this call will depend on your individual responses.

## WHAT ARE THE RISKS AND DISCOMFORTS OF PARTICIPATING IN THIS RESEARCH STUDY?

Unstamped forms are invalid  
IRB Approved  
DVAMC  
Date 9/11/14

Department of Veterans Affairs		Research Informed Consent Form	
Version Date: 2014-08-25		Page 2 of 9	
IRB Template: 2014-05-12		VA Form 10-1086	
Participant Name:			
Study Title: Randomized Trial of Titrated Disease Management for Patients With Hypertension		Date:	
Principal Investigator: Dr. George L. Jackson, PhD, MHA		VAMC, Durham	

the study without regard to your consent for one or more of the following reasons: Investigator decides that continuing your participation could be harmful to you, or failure to follow instructions of investigator and/or study staff.

Department of Veterans Affairs		Research Informed Consent Form	
Version Date: 2014-08-25		Page 9 of 9	
IRB Template: 2014-05-12		VA Form 10-1086	
Participant Name:			
Study Title: Randomized Trial of Titrated Disease Management for Patients With Hypertension		Date:	
Principal Investigator: Dr. George L. Jackson, PhD, MHA		VAMC, Durham	

unless they agree to keep the information confidential and use it only for the purposes related to the study. Any information shared with these outside groups may no longer be protected under federal law. These groups may disclose your information to other groups. If the sponsor receives identified information, it is then the sponsor, and not the VA, who is responsible for the security of the information.

## WHO DO I CONTACT IF I HAVE QUESTIONS OR CONCERNS ABOUT THE RESEARCH STUDY?

If you have questions about the research or need to talk to the study team, you can contact the principal investigator at (919) 286-6936 during the day and at (919) 210-6468 after hours. If you have questions about the research or your rights as a research participant, would like to obtain information, offer input, or have other concerns or complaints, you may contact the administrative officer of the research service at (919) 286-0411, extension 7632.

## AFFIRMATION FROM PARTICIPANT

My rights as a research participant have been explained to me, and I voluntarily consent to participate in this study. I have received an explanation of what the study is about and how and why it is being done. I authorize the use and disclosure of my identifiable information as described in this form. I will receive a signed copy of this consent form. If I am a VA patient, a copy of this consent form will be placed in my medical record.

Participant's Signature/Legally Authorized Representative\* Date

Signature of Investigator or Person Obtaining Consent Date

Unstamped forms are invalid  
IRB Approved  
DVAMC  
Date 9/11/14

Consent Form	
Page 9 of 9	
12	
Formed Consent Form	
t Form	
014-08-25	
014-06-12	
Date:	
ents With Hypertension	
VAMC, Durham	

## LATED TO THIS RESEARCH

Development. Portions of Dr.  
rch team's salaries are paid by

ing your research records are  
ed. This may change in the  
rds will be maintained  
including survey and audio files,  
and key at locations managed  
nputer files that will be  
separate password and will be  
data will be obtained using a  
network. If the computer  
ad VA owned computer or by  
ntal disclosure will NOT take  
d by study ID number and have  
with password protection to  
in locked file cabinets. The  
nic format will be deleted or  
trol requirements for

I by name, by recognizable

responsible for the safe conduct  
I agencies such as the Office for  
emeral (OHG), and the Office of  
se groups outside the VHA

Unstamped forms are invalid  
IRB Approved  
DVAMC  
Date 9/11/14

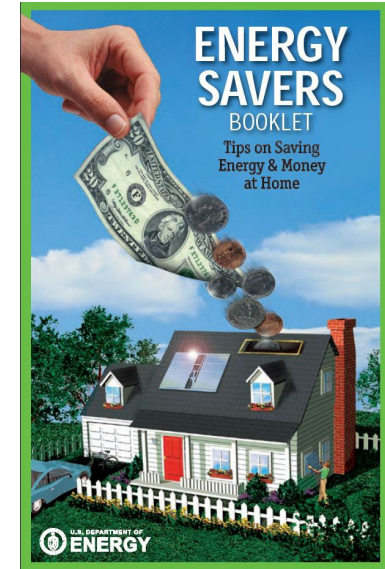
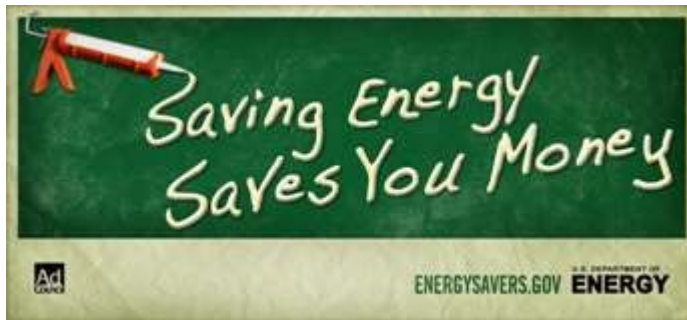
Unstamped forms are invalid  
IRB Approved  
DVAMC  
Date 9/11/14

- Longer consent forms undermine engagement and understanding
- Providing bullet points with information patients want at beginning of consent form may be better

(Yu et al., Medical Decision Making, 2018)




## 4. Misunderstanding motivations: energy savings



Advertisements for residential energy saving programs typically mention that they *save money*

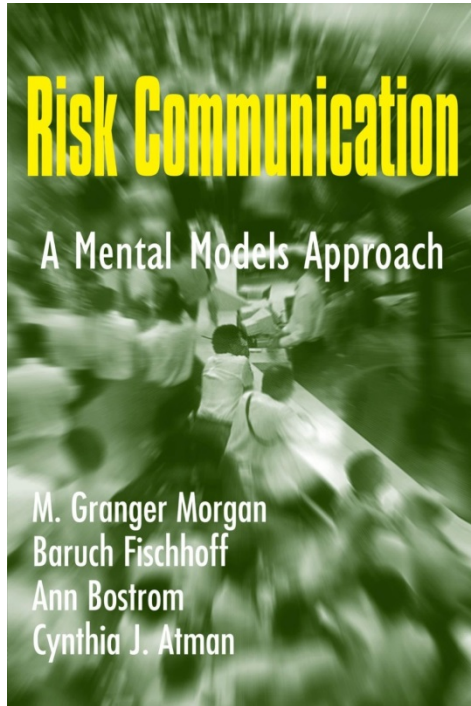
### 3. Misunderstanding motivations: energy savings

- We tested three advertisements:
  - (1) the monetary benefits: “We are offering a new program that will help you to save money. By using less electricity, you can reduce your electricity bill.”
  -  (2) the environmental benefits: “We are offering a new program that will help you to save energy. By using less electricity, you can reduce your environmental impact.”
  - (3) both benefits: “We are offering a new program that will help you to save money and energy. By using less electricity, you can reduce your electricity bill and your environmental impact.”

Advertising environmental benefits alone improved willingness to enroll compared to advertising monetary benefits or both

*(Schwartz, Bruine de Bruin, Fischhoff, & Lave  
Journal of Experimental Psychology: Applied 2015)*

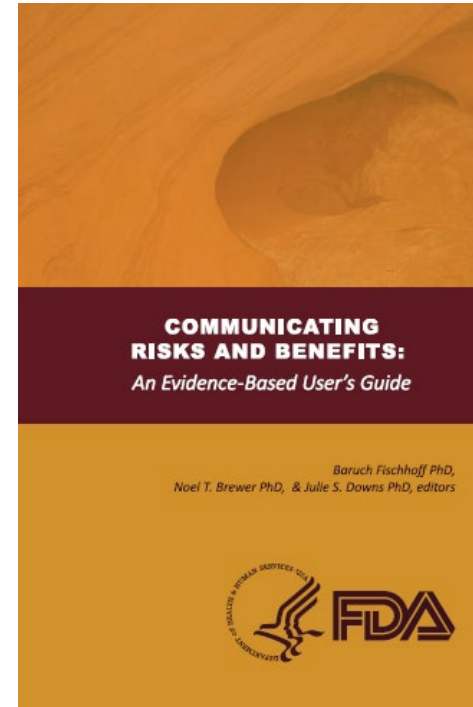
# More about the methodology



Morgan, M.G., Fischhoff, B., Bostrom, A., & Atman, C. (2002). *Risk communication: A mental models approach*. New York, NY: Cambridge University Press.

Fischhoff, B., Brewer, N.T., & Downs, J.S. (2011). *Communicating risks and benefits: An evidence-based user's guide*. USFDA.

[www.fda.gov/oc/advisory/OCRCACACpg.html](http://www.fda.gov/oc/advisory/OCRCACACpg.html)



Also on YouTube

Bruine de Bruin, W., & Bostrom, A. (2013). How to assess what to address in science communication. *PNAS*, 110, 14062-14068.

# Take-home messages

1. Avoid confusing wording and graphs
2. Avoid information overload
3. Address motivations



# Take-home messages

1. Avoid confusing wording and graphs
2. Avoid information overload
3. Address motivations
- 4. Know your audience*
- 5. Test your communications*
- 6. Behavioral researchers can help 😊*



# Contact



**Wändi  
Bruine de Bruin**  
wandibdb@usc.edu