

# Behavioral Science in Life Insurance Application Re-Design

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SAI Life - Life Reinsurance and Innovation Series



Thank you all for being here!

I'm excited to get to share with you some of the research that my team and I have been working on in the area of life insurance application re-design.



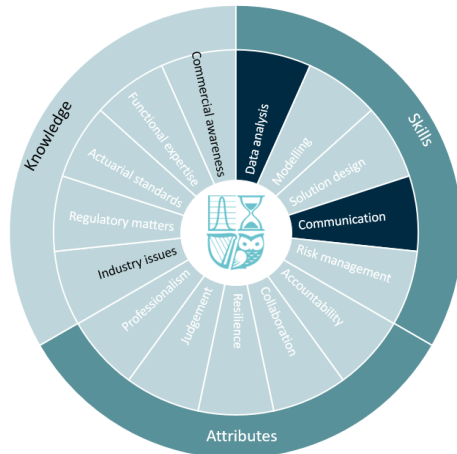
## Disclaimer

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**The views expressed in this presentation are those of the presenter(s) and not necessarily those of their employer(s) (if any) or the Society of Actuaries in Ireland.**



## Competency Framework Wheel





## Collaborators Acknowledgment

- This research was funded and overseen by the Society of Actuaries, who hired SCOR as the researcher. Our deepest gratitude goes to those without whose efforts this project could not have come to fruition: the SOA volunteers who generously shared their wisdom, insights, advice, guidance, and arm's length review of this study. Any opinions expressed may not reflect their opinions nor those of their employers. Any errors belong to the researchers alone.
- These results are not finalized and should be considered a draft.
- I'd also like to acknowledge our amazing project team at SCOR:
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  - Katherine McLaughlin
  - Davy Moore
  - Caitlyn Parsons
  - Robyn Wallner



Today I am delighted to share the results of this study that SCOR has worked on with the SOA to quantify the impact on disclosure of behavioural science redesign of application form questions. The full results of this study are due to be published in May so we will share with you today a preview of the latest available results noting that these are still in draft until the full pre-publication review has been completed. I also want to acknowledge the amazing team at SCOR who've been working on this project including actuaries, underwriters and behavioral scientists.

## Agenda



- 1 Motivation and Background
- 2 Industry Survey
- 3 Design
- 4 Anchoring: Height/Weight
- 5 Ask again:  
Medical Conditions
- 6 Ask One Thing at a Time/Building Trust:  
Mental Health
- 7 Assume the Behavior Exists:  
Tobacco
- 8 Conclusion



To give you an idea of where we're going, we're first going to talk a bit about the background of this research and the reasons we wanted to explore it. Then we will look at some survey results showing how widely BehSci is used in life insurance. Next Denis will go over the design of our research experiment. We'll discuss the results by highlighting the key BehSci principles tested and share the findings in terms of impact on disclosure for 4 questions. We'll wrap-up with a summary of the study and look forward to taking your questions.

# 1. Motivation and Background

## Motivation and Background The Life Insurance Application Process



- Applicant must complete a questionnaire as part of the application process.
- Questionnaire asks about medical history and lifestyle.
- Automated/streamlined application processes make this questionnaire even more important.
- Many applications (9-23%) contain non-disclosure – the applicant gives false or incomplete information about their history or lifestyle.



The insurance application is intended to provide the underwriter the info needed to price the risk. From a customer perspective this is a health questionnaire that asks about things like your medical history, lifestyle and behaviors.

Now we see a trend in the insurance industry to rely more on the application form and reduce the medical exams, blood tests, and interviews carried out. This can reduce insurer costs but also creates a faster application process for the customer. It means that the information gathered on the application form is even more important, because it may be the only information the insurer gets to price the risk.

Unfortunately, we know from previous studies that somewhere in the range of 9-23% of all application forms submitted contain some amount of nondisclosure. This is when the applicant either gives false answers to the questions on the form or leaves out information that is asked about on the form.

## Motivation and Background Why Do We Want Full Disclosure?



Full disclosure ensures...

- A valid contract
- Payment of benefits when a policyholder makes a claim
- An accurate and clear understanding of the policyholder's risk



Full disclosure would be better for everyone.

Full disclosure means that both parties that are entering into this insurance contract have the same information about the risks and the benefits involved. It means that the contract is valid and fair for everyone.

This valid contract means that later on, when the policyholder makes a claim on their insurance, the insurance company will be able to fulfill that claim and pay out the benefits of the contract, because everything was valid and properly set up in the first place.

So ultimately full disclosure benefits both the insurance company and the applicant.





## Motivation and Background Why Does Non-Disclosure Happen?

A lot of non-disclosure is unintentional or well-meaning!



Now some nondisclosure involves intentional fraud – applicants intentionally lying on their application form to attempt to get a lower premium on their insurance contract.

However, a lot of nondisclosure – maybe even the majority of nondisclosure – is actually unintentional or even well-meaning!

This can happen in a lot of different ways. Maybe the applicant is confused by a question on the form and so they just skip it. Maybe an applicant is trying to get through the form quickly, so they just skim through large portions of it and they miss a question that they should have responded to. Or sometimes an applicant will actually reinterpret a question as they are answering it to justify to themselves why they don't need to answer. And then finally sometimes people nondisclosed because disclosing would put them into a category that they don't think they belong in.



## Motivation and Background Why Does Non-Disclosure Happen?

These applicants want to be honest with us. Can we help them do that?



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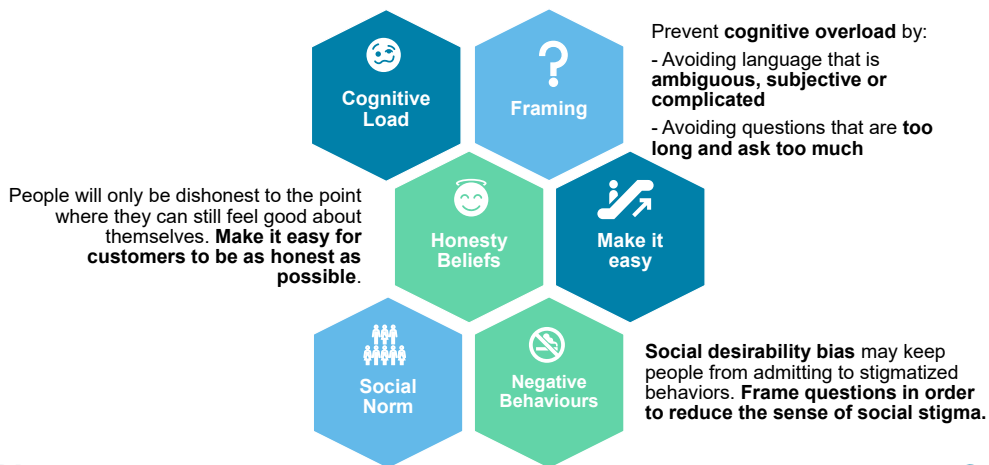
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Now all of these people want to be honest with us. They would never think of what they are doing as intentionally being deceptive. But they also want the process to be easy and not painful to get through.

Unfortunately, traditional application forms are often long, confusing, and stigmatizing. They can lead applicants to feel frustrated or threatened. They don't make it easy for applicants to be honest, even when they want to.

## Motivation and Background

### Can We Re-Design Application Questionnaire Using Behavioral Science to Reduce Non-Disclosure?



So our idea for this research was to see if we could use principles from behavioral science to re-design the life insurance application form to make it easier for applicants to be honest, to encourage full disclosure, and improve the experience for everyone.

We identified some key behavioral science principles that apply here.

First, as I mentioned application forms often contain really long, complicated questions that are hard to understand and easy to misinterpret. This can easily lead to cognitive overload where applicants have trouble processing all of the information.

Finally, we know that humans are social creatures and we like to fit in and be in line with the norm. So, questions that highlight negative behaviors can impact our willingness to admit to the behaviour if we think it would be out of line with our peers. So we want to frame questions to reduce any feelings of stigmatization and make people feel comfortable disclosing.



## Social norms

Humans are social creatures.

### Social norm

Whatever behavior/circumstance is considered normal and accepted in our society

Humans want to adhere to the social norm.  
Violating it makes us feel threatened or stigmatized.

If disclosing something makes an applicant **worry** they are violating a social norm, they will be more likely to non-disclose to avoid violating this norm.

We can design the application form to show that the behavior/circumstance which needs to be disclosed is within the social norm.

I want to talk briefly about the concept of social norms as this is one of the main concepts that we used when re-designing the application form questions.

Humans are social creatures and we like to fit in and be in line with the norm of our group or society. If we step outside of this norm, we can feel threatened or stigmatized. If a question asks about a behavior or experience that an applicant worries is outside of the social norm, they may not feel comfortable disclosing this. So we want to think about ways to frame questions so that the behavior we are asking about appears to be within the social norm. There are many different ways to apply this idea, and we'll see it come up over and over again in the question designs investigated in the study.

## 2. Industry Survey

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The first part of our research was a survey conducted with SOA membership to understand how BehSci is currently being used in life insurance. Before sharing the results I want to conduct a mini survey of the Irish market with you our attendees today using polling. You will see question appearing shortly...

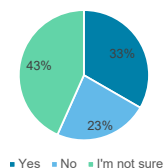


## Usage of behavioral science – SAI poll results

1. To the best of your knowledge, does your organization use behavioral science **for life insurance products and processes specifically**?

60 attendees responded to the poll  
**33.3%** identified that their organization is using behavioral science

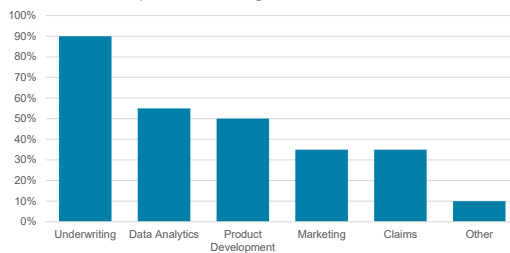
Using Behavioral Science



2. Which **department(s)** in your organization are involved in behavioral science projects for life insurance products and processes?

Among the 20 attendees that answered Yes to Q1, underwriting is the most common department followed by data analytics and product development.

Departments Using Behavioral Science

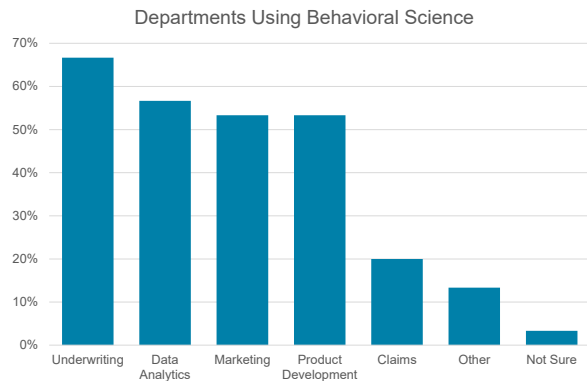


## Usage of behavioral science – Industry survey results



**34.5%** Organizations using behavioral science in life insurance

**83%** Of those, use it on at least 1/3 of their projects and processes



Results of SCOR SOA Industry Survey



In the survey conducted by SCOR and the SOA, we received responses from 95 insurance professional from 87 separate organizations. The majority of respondents were from the US but Canada, Europe and Asia Pacific countries were also represented. First we wanted to know – does your organization use BeSci? Globally, 34.5% of organizations use behavioral science in life insurance products and processes. A significantly higher proportion of respondents in the US (45%) say their organization uses behavioral science compared with the rest of the world (22.5%). From the 30 organizations (34.5%) using behavioral science in life insurance, over 83% use behavioral science on at least a third of their projects and processes. The top three departments that use behavioral science for life insurance are underwriting, data analytics and marketing. Reinsurance organizations are especially likely to be using BeSci in UW.

# 3. Design



## Overview of the design



### The Idea:

- Test the impact of behaviorally-redesigned UW questions on disclosures.

### The Big Question:

- Will behaviorally-redesigned UW questions increase disclosures?

### The Experiment:

- Present participants with either a traditional or a behaviorally-redesigned insurance application form. Measure and compare their disclosure rates.



Ok so, the main idea behind this research is to use the behavioral science principles that Aisling has just described to design new life insurance application forms.

Our “Big question” is the following: Will behaviourally-redesigned UW questions increase disclosures?

To test this, we designed **an online survey** where participants were asked to answer questions that are usually asked during life insurance application. Participants were randomly assigned to be presented with either:

- a traditional life insurance application form
- **or**
- a one that we had re-designed using behavioral science principles.

We can then measure the disclosures from each group of participants and compare them to see the effect of the re-design.



## Design of the Groups Five Groups – 4200 Total Participants

Control Questionnaire	Questionnaire A	Questionnaire B	Questionnaire B + Honesty Pledge at Start	Questionnaire B + Honesty Pledge at End
<ul style="list-style-type: none"><li>• 1050 participants</li><li>• Traditional UW questions</li><li>• No honesty pledge</li></ul>	<ul style="list-style-type: none"><li>• 1050 participants</li><li>• Behaviorally-redesigned UW questions – Version A</li><li>• No honesty pledge</li></ul>	<ul style="list-style-type: none"><li>• 1050 participants</li><li>• Behaviorally-redesigned UW questions – Version B</li><li>• No honesty pledge</li></ul>	<ul style="list-style-type: none"><li>• 525 participants</li><li>• Behaviorally-redesigned UW questions – Version B</li><li>• Behaviorally-designed honesty pledge – Beginning of application</li></ul>	<ul style="list-style-type: none"><li>• 525 participants</li><li>• Behaviorally-redesigned UW questions – Version B</li><li>• Behaviorally-designed honesty pledge – End of application</li></ul>



Ok so what was concretely our design?

We recruited over 4 thousand participants. They were split into 5 groups that you can see on this slide.

Those groups were defined **randomly but sharing same characteristics in term of age, gender and education level**. And the distribution of these characteristics is close to the one from a US-insured population.

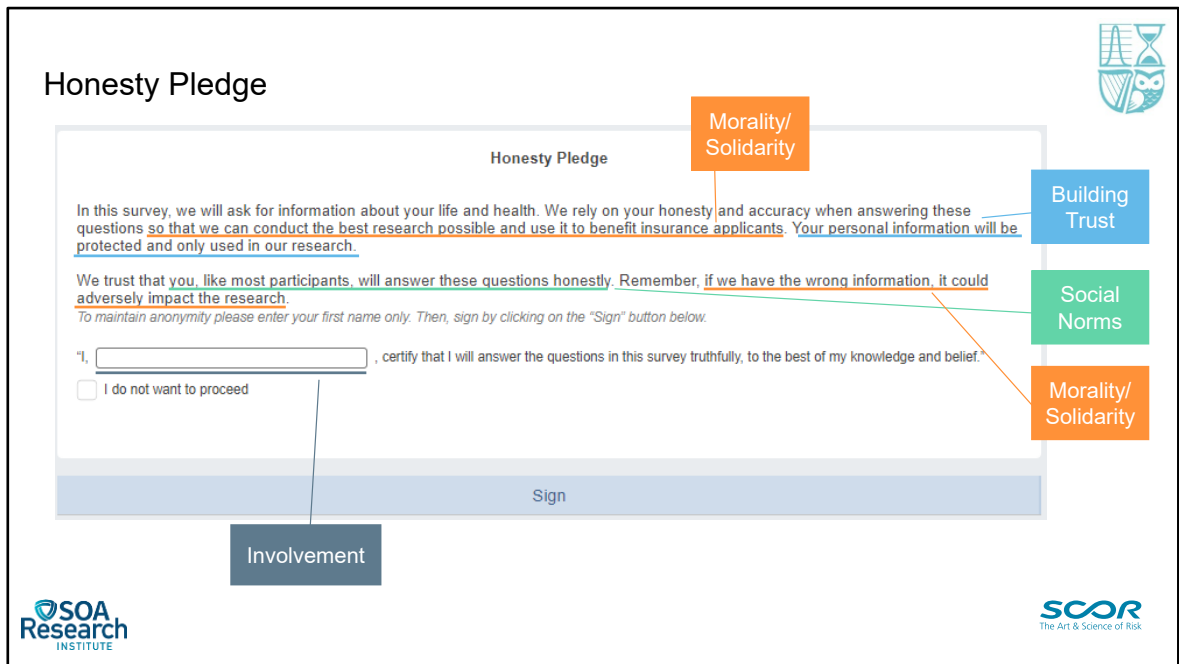
Given that each of our main groups has just over 1,000 participants, we assume that each group has a similar prevalence for each condition studied.

The participants in each group received a sample life insurance application. We also asked for demographic data such as income, marital status, and others to give us extra information for analysis.

Those in the control group received a form **with traditionally worded questions**, that was defined with underwriters.

Those in the other groups received a form with behaviorally re-designed questions. We wanted to test the impact of different behavioral principles on the same question, so we created two sets of behavioral applications. QA received behavioral applications and QB received other ones.

Added to changing the wording of questions, **we wanted to test whether an explicit honesty pledge impact disclosures**, so our final two groups use the same application form as QB and add an honesty pledge at either the beginning of the form or the end of the form.

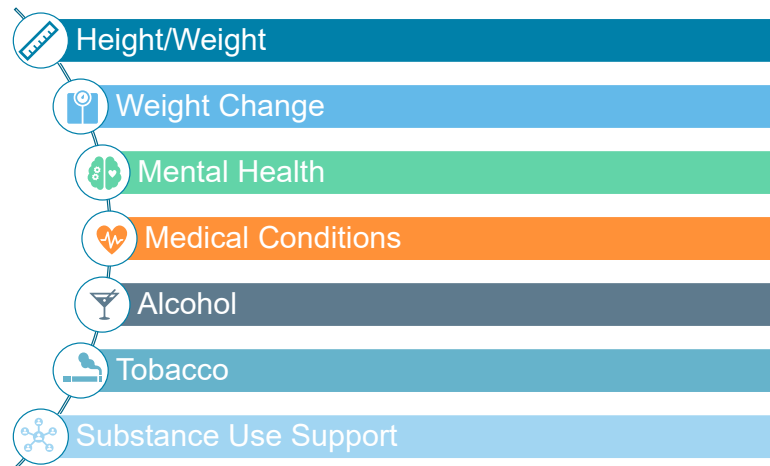


Here you can see the honesty pledge that we used. We incorporated multiple behavioral principles that I will describe:

- First, we encourage participants' **Morality and solidarity**, explaining that their responses will permit to "conduct the best research possible and used to benefit insurance applicants". We also leverage morality and solidarity at the end of the paragraph explaining to participants that sharing wrong information could adversely impact the research.

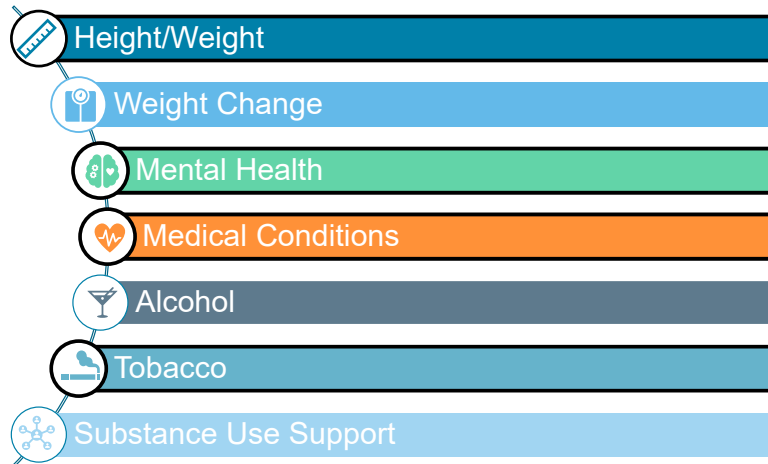
- We also **built trust** explaining that personal information is protected and only used for research purposes.
- Writing “like most participants” **defines social norms**.
- Finally, as a participant, I had also to write my name and “certify that I will answer the question in this survey truthfully and so on...”

## Questions Explored



For now we have defined the recruitment of our participants and how they are randomly designed. To make sure that everything was fair between the groups, each of the forms asked about the same things, just in different ways. Now I show you which main topics were asked to participants. These **are fairly representative** of the main, most important topics that come up in a usual life insurance application form. From an underwriting perspective, these are factors that most impact claims.

## Questions for Focus



For the rest of today's presentation, we will present results on height and weight, mental health, medical conditions, and tobacco. And Aisling will start with height and weight disclosures.



## **4. Experiment Results: Height/Weight**

## Height/Weight: Control Questionnaire



### Standard Question Wording

What is your height?  
*Please enter a number into the spaces below.*

Feet:

Inches:

Weight?  
*Please enter a number into the space below.*

Pounds:

- Requires open-ended response
- Applicants may assume that a normal/desirable weight is quite low
- Since they want to stay within the norm, they may round down their weight

For the Height/Weight question, the standard question wording just asks for an open-ended numerical answer. Again, this provides no social norm, so applicant may come up with a number in their own head for what the normal or desirable weight might be. Whatever number they have in their head, if their own weight is above that number, they may round it down when reporting it in order to stay closer to the perceived social norm.

## Height/Weight: Questionnaire A



### Anchoring with Slider Bars

Weight?

Pounds:

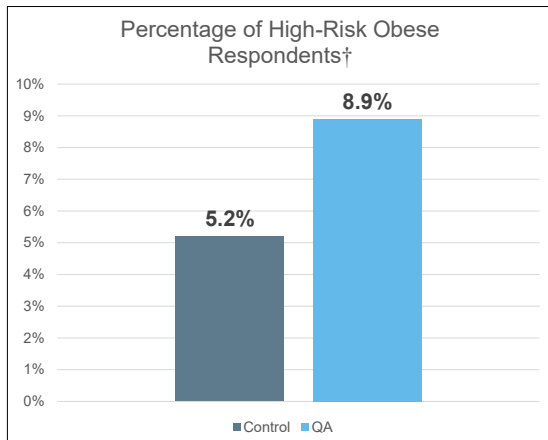
325

- Starting number of slider bar serves as an anchor – a number that informs applicants' estimates of the social norm and influences their response
- The high anchor sets a high social norm, making applicants more comfortable disclosing high weights

We can help with this by adding an anchor. In BeSci, anchoring is when the first piece of information that a person sees influences their answer to the question. The anchor can signal what is the expected or normal answer. Here in QA, we ask for participants' weight using a slider bar, and we set the starting point of the slider bar at a relatively high number, 325 pounds. This means that 325 seems like a normal, expected amount, and most people who enter their weight will get to pull the slider down to the left. This makes them feel that they are within the normal weight range – they're even under the normal weight range – making them more comfortable about their weight and more likely to be honest.



## Height/Weight: Results



71% increase in disclosure\*\*



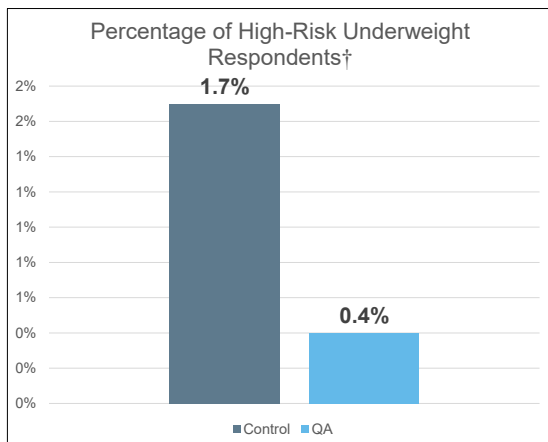
†Those with a BMI of 40 or more  
\*\*Significant at the 1% level



The results of this change depend on which set of respondents we focus on. Here are the results for the disclosure of high-risk obese respondents – those with a BMI of 40 or more. As you can see, it seems that the high anchor was successful at encouraging disclosure of higher weights – we saw a 71% increase in high-risk obesity disclosures from QA compared to the Control.



## Height/Weight: Results



76% decrease in disclosure\*\*



†Those with a BMI of 17 or less  
\*\*Significant at the 1% level



However, the high anchor had the opposite effect on disclosures of high-risk underweight BMIs – those with a BMI of 17 or less. It seems like the high anchor point here might have made underweight participants feel like they were outside of the norm, because they had to drag the slider down so far. This may have made them round up their weight.

This shows that it's important to consider all of the possible consequences of a question change. If you are primarily concerned with catching high-risk obesity, this kind of set up could work well. If you are more concerned about underweight applicants, then you might need to consider how this setup could affect them.

## **5. Experiment Results: Medical Conditions**

## Medical Conditions: Standard Question Wording



In the past 10 years, have you ever been diagnosed with, been treated for, been hospitalized for, tested positive for, had surgery or other medical procedures for, taken prescription(s) or medication(s) for, or been advised by a licensed medical professional for any of the following:

High blood sugar, diabetes, thyroid disorder, glucose intolerance, sugar in the urine, or other disease of the endocrine system?  Yes  No

Cancer, leukemia, lymphoma, melanoma, brain tumor, malignant tumor, Hodgkin's disease, or multiple myeloma?  Yes  No

High blood pressure, heart disease, high cholesterol, stroke, coronary artery disease, heart attack, angina, congestive heart failure, enlarged heart, pulmonary embolism, peripheral vascular disease, carotid artery disease, transient ischemic attack (TIA), unoperated aneurysm, heart surgery, or any other cardiovascular condition?  Yes  No



Ok so next we're going to talk a bit about the results for medical conditions. This is how an application form typically asks about medical conditions. As I mentioned with mental health there's usually a header and then there are lists of medical conditions that are usually grouped by body system. So you can see here we have conditions involving the endocrine system, conditions related to cancer, and conditions of the cardiovascular system. And each one of these lists has an overall Yes/No question that need to answer.

However, within these long lists of medical conditions, there are usually some that are more important than others for the insurance company to know about – conditions that can have a big impact on your risk level if you've had them.



## Medical Conditions: Standard Question Wording

In the past 10 years, have you ever been diagnosed with, been treated for, been hospitalized for, tested positive for, had surgery or other medical procedures for, taken prescription(s) or medication(s) for, or been advised by a licensed medical professional for any of the following:

High blood sugar, **diabetes**, thyroid disorder, glucose intolerance, sugar in the urine, or other disease of the endocrine system?  Yes  No

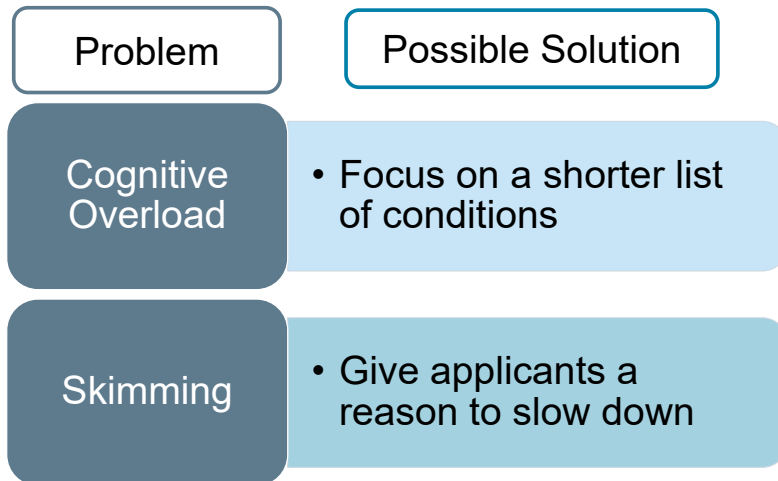
**Cancer**, leukemia, lymphoma, melanoma, brain tumor, malignant tumor, Hodgkin's disease, or multiple myeloma?  Yes  No

High blood pressure, **heart disease**, high cholesterol, stroke, coronary artery disease, heart attack, angina, congestive heart failure, enlarged heart, pulmonary embolism, peripheral vascular disease, carotid artery disease, transient ischemic attack (TIA), unoperated aneurysm, heart surgery, or any other cardiovascular condition?  Yes  No

So these would be things like diabetes, cancer, and heart disease. But of course you can see here that these very important conditions can get buried in the long lists of other medical conditions.



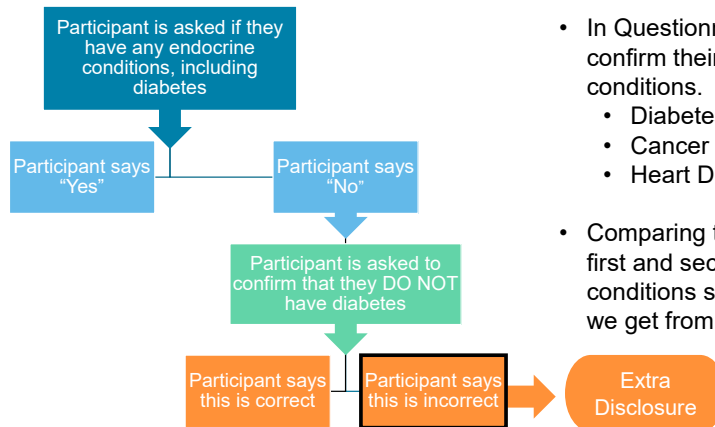
## Medical Conditions: Standard Wording



These long lists lead to two main problems: the first is cognitive overload – it's just too much information for people to process and it can become overwhelming and frustrating. A possible solution here would be to only ask about a shorter list of conditions, but then we might miss out on information that we need. So we had to think about how to overcome cognitive overload without eliminating questions.

The second issue is that long lists like this tend to lead to skimming, where the applicant doesn't read each list carefully and just checks No to each of them without thinking. So we wanted to give applicants a reason to slow down.

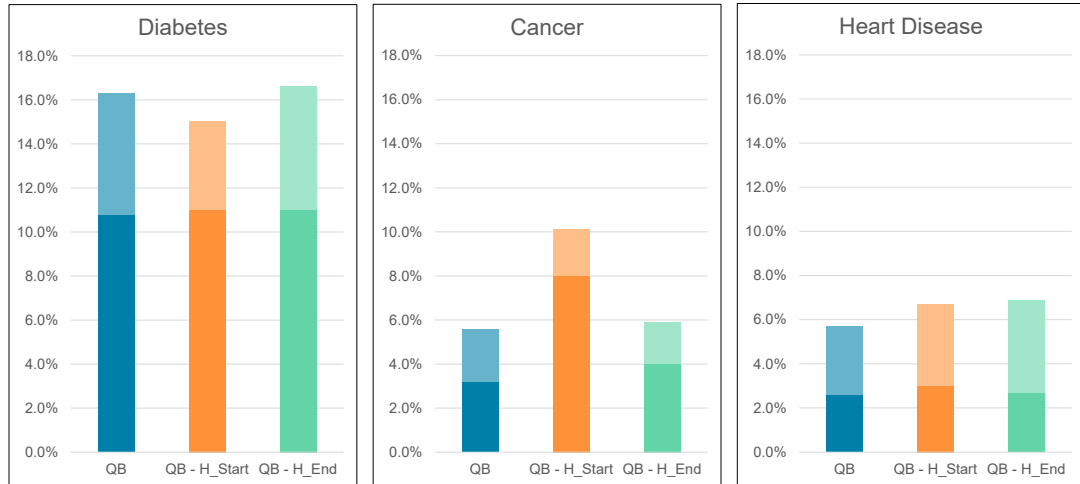
## Asking Again



- In Questionnaire B, participants are asked to confirm their nondisclosure of certain conditions.
  - Diabetes
  - Cancer
  - Heart Disease
- Comparing the number of disclosures from the first and second time we asked about these conditions shows us how much extra disclosure we get from asking again.

So this was our solution, which we tested in Questionnaire B with three important conditions- diabetes, cancer, and heart disease. The way the system works is that participants were still presented with the normal, long list of medical conditions, including the three we really care about – so they are asked about the endocrine conditions and diabetes is in the list. If they say No to that list, then later, after they’ve gone through all of the medical conditions, we asked them to confirm what they said – “You said you don’t have diabetes. Is this correct?” If the participant says that this is incorrect, we have extra disclosure. We can then compare the disclosure we got from the first time we asked the question with how much extra disclosure we got from asking about it a second time.

## Asking Again: Disclosures from First and Second Asks

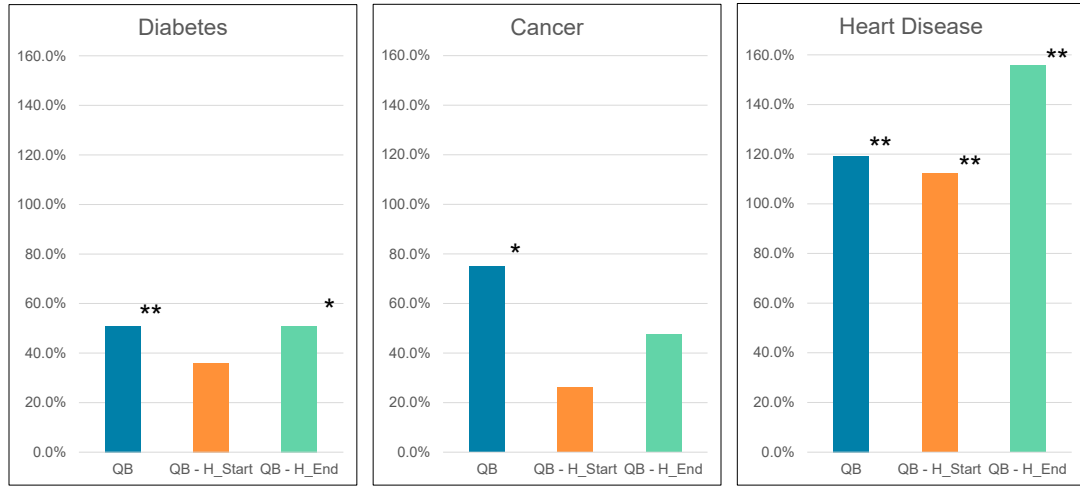


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And here you can see for each of the conditions the additional disclosure. The darker portion of each bar is those who disclosed the first time they were asked. The lighter top part of the bar is the additional disclosure from the confirmation question.

## Asking Again: Increase in Disclosure from Second Ask



\*\* = Significant at 1% level  
\* = Significant at 5% level



Here are the same results but looking at it on a relative basis – so the % increase in disclosure the 2<sup>nd</sup> time vs the 1<sup>st</sup> time. For heart disease in particular, we see more people saying yes the second time than the first. And we think this could be because people are scanning through a long list of questions quite quickly but then when asked in a short version and highlighting only diabetes, cancer, and heart disease, they key in more directly.

This particular approach seems worth it, but of course, each company would want to be strategic in which conditions to ask a second time based on your market and conditions you are concerned about.

## 6. Experiment Results: Mental Health

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Focus on mental health disclosures that is quite an important topic, especially for disability and income protection products. When preparing those slides, I found for instance figures from 2020 showing that mental health problems accounted for 27% of income protection claims in the UK, and similar results for other markets.

## Mental Health: Control Questionnaire



### Standard Question Wording

In the past 10 years, have you ever been diagnosed with, been treated for, been hospitalized for, tested positive for, had surgery or other medical procedures for, taken prescription(s) or medication(s) for, or been advised by a licensed medical professional for any of the following:

Anxiety, depression, bipolar disorder, attention deficit disorder (ADD), stress, eating disorder, post-traumatic stress disorder (PTSD), schizophrenia, or any other mental, nervous, psychiatric, or emotional disorder, disease, or condition?

*Please select the best answer.*

- Yes
- No



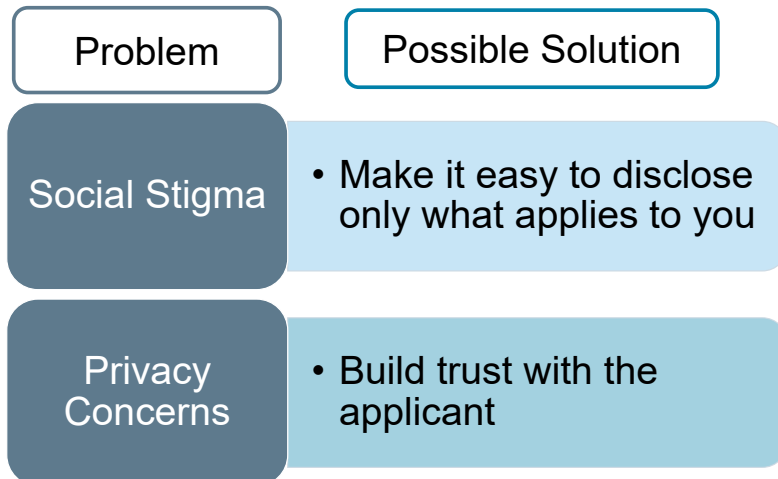
Here is the **traditionally**-worded question that those in our control group received. This question would typically be included in a longer list of questions about various medical conditions. You would have the following heading: **[Read]... so as Aisling said earlier, you can see it is quite long right?**

And then you have a long list of mental health conditions with one Yes/No response required for the entire list **[Read]**.

So if you've ever experienced any one of these conditions, you are supposed to say Yes to this entire

question. After you said Yes, there's another screen with the list of conditions, each with their own separate checkbox, so that you can indicate which one applies to you. **But first, you have to say Yes to this overall list**, which we assume could lead to potential issues...that I will explain in the next slide.

## Mental Health: Control Questionnaire



First, mental health is surrounded by social stigma. In most cultures, it can be a very stigmatized issue, especially with certain mental health conditions. This means that if you have a condition like anxiety or depression, which are more “accepted” and less stigmatized, you may not want to say Yes to that overall list because it also contains much more stigmatized conditions such as schizophrenia and bipolar disorder.

You might think that you don’t belong in the same box as people with those conditions. So you might say



**No** to this overall list to avoid being **lumped in** with the conditions that don't apply to you.

One possible solution to this issue is to make it easier for applicants to only have to admit to the conditions that **actually** apply to them.

A second issue with mental health is that it's a very personal and private topic. A lot of applicants may not be comfortable talking about their mental health with their family, so much less with their insurance company. So we also tried to find a way to build trust with applicants to make them feel more comfortable disclosing such info.

## Mental Health: Questionnaire A



### Separating Conditions

In the past 10 years, which of these conditions have you been diagnosed with, treated for, or advised by a licensed medical professional for?

*Please select all that apply.*

- Anxiety
- Depression
- Bipolar disorder
- Attention deficit disorder (ADD)
- Stress
- Eating disorder
- Post-traumatic stress disorder (PTSD)
- Schizophrenia
- Other mental, psychiatric, or emotional condition
- None of these

Questionnaire A was redesigned to address that first problem of having to admit to conditions that didn't apply to you. **Instead of having the overall list**, and then the individual checkboxes, we just went immediately to having separate checkboxes for each condition. So if you've had anxiety, you only need to check anxiety. If you've had depression, you only need to check depression and so on. And, of course, if you've never had a mental health condition, you can still just check "None of these".

Doing so, we assume it makes it easy for an

applicant to admit to only the condition that they have rather than having to say yes to that long list.

## Mental Health: Questionnaire B



### Building Trust

In the past 10 years, have you ever been diagnosed with, been treated for, been hospitalized for, tested positive for, had surgery or other medical procedures for, taken prescription(s) or medication(s) for, or been advised by a licensed medical professional for any of the following:

*We understand that the topic of mental health can be very personal and sensitive. We want to reassure you that we are only seeking to better understand you and your individual experiences. Any information you provide will be strictly confidential.*

Anxiety, depression, bipolar disorder, attention deficit disorder (ADD), stress, eating disorder, post-traumatic stress disorder (PTSD), schizophrenia, or any other mental, nervous, psychiatric, or emotional disorder, disease, or condition?

*Please select the best answer.*

Yes

No



For questionnaire B, we focused on trying to build trust with the applicant. We kept the exact same question wording as in the control group, but we added in this little message the fact **that we know this is a sensitive issue**, that we only want to understand them better, **and we will keep their information confidential.**

## Mental Health: Questionnaire B + Honesty Pledge at Start



### Building Trust + Honesty Pledge at Beginning

#### HONESTY PLEDGE AT BEGINNING OF APPLICATION

In the past 10 years, have you ever been diagnosed with, been treated for, been hospitalized for, tested positive for, had surgery or other medical procedures for, taken prescription(s) or medication(s) for, or been advised by a licensed medical professional for any of the following:

*We understand that the topic of mental health can be very personal and sensitive. We want to reassure you that we are only seeking to better understand you and your individual experiences. Any information you provide will be strictly confidential.*

Anxiety, depression, bipolar disorder, attention deficit disorder (ADD), stress, eating disorder, post-traumatic stress disorder (PTSD), schizophrenia, or any other mental, nervous, psychiatric, or emotional disorder, disease, or condition?

*Please select the best answer.*

Yes

No



Then finally, we use the same question as in QB but add the honesty pledge either at the start of the application....

## Mental Health: Questionnaire B + Honesty Pledge at End



### Building Trust + Honesty Pledge at End

In the past 10 years, have you ever been diagnosed with, been treated for, been hospitalized for, tested positive for, had surgery or other medical procedures for, taken prescription(s) or medication(s) for, or been advised by a licensed medical professional for any of the following:

*We understand that the topic of mental health can be very personal and sensitive. We want to reassure you that we are only seeking to better understand you and your individual experiences. Any information you provide will be strictly confidential.*

Anxiety, depression, bipolar disorder, attention deficit disorder (ADD), stress, eating disorder, post-traumatic stress disorder (PTSD), schizophrenia, or any other mental, nervous, psychiatric, or emotional disorder, disease, or condition?

*Please select the best answer.*

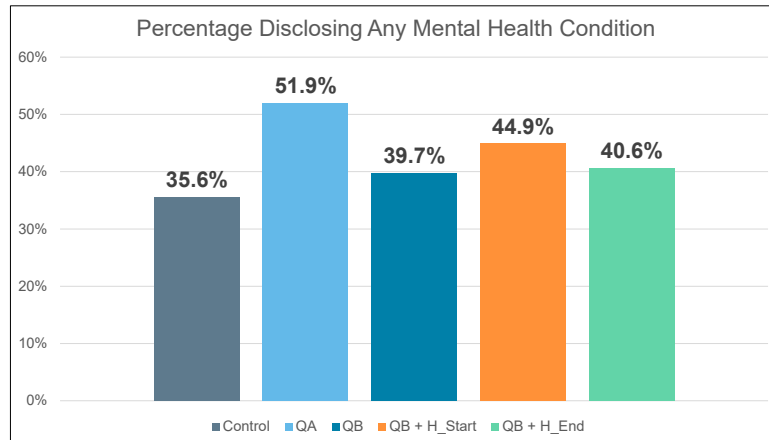
- Yes
- No

**HONESTY PLEDGE AT END OF APPLICATION**



...or at the end.

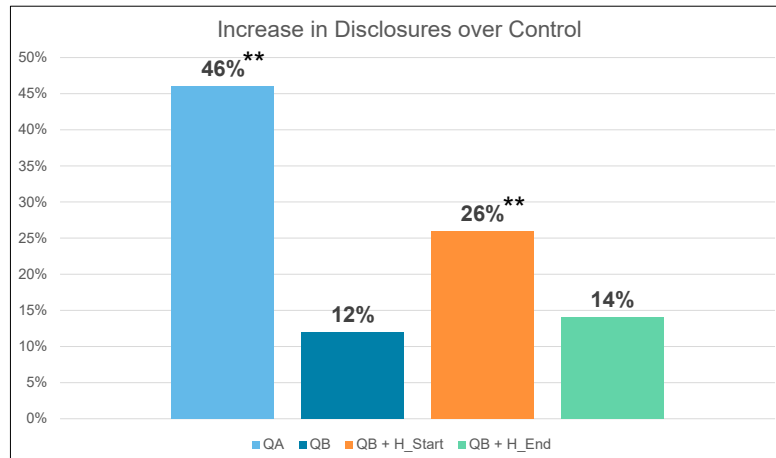
## Mental Health: Results



What we show is the percentage of participants in each group that disclosed **any** mental health condition. So in the control group, it's about 36%. It goes up just slightly for Questionnaire B to about 40% (the orange bar). But as you can see, the big jump here is from Questionnaire A, in which around 52% of respondents disclosed at least one mental health condition.

Adding the honesty pledge at the beginning of the questionnaire provided also higher disclosures.

## Mental Health: Results



\*\* = Significant at 1% level



You can actually see this even better when we look at the increase in disclosures from Questionnaires A and B compared to the Control questionnaire, so as a relative basis. You can see QA has over a 45% increase in disclosure compared to the control group, and QB with honesty statement at the beginning just over 25%.

The two other groups don't show any significant increase.

Note also that we did take a look at the results across demographics and QA remains statistically significant



across ages, genders and education levels, so we are quite confident with this result.

In the full report that is produced for this study, we also looked at the materiality of the additional disclosure. You may recall that the listed conditions range from stress and anxiety to bipolar disorder and schizophrenia. Anxiety and Depression are the most disclosed conditions across groups, **but stress seems to be the biggest driver of the increase in QA.**

This validates our assumption that people don't want to admit to a list of conditions if they have what they view as a **milder one.**

## 7. Experiment Results: Tobacco

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I'll now discuss about the tobacco of smoking status question. It's common knowledge that tobacco use can impact insurance policies. And If you discuss with a claim assessor, he or she will probably explain to you that finding non-disclosure linked with tobacco usage is very rare. However, when we look at publicly available data, we see a quite huge difference between general population smoking rates and policyholder rates. We assume here that **part** of this difference comes from non-disclosure.

## Tobacco: Control Questionnaire – Standard Question Wording



Have you ever used tobacco or products containing nicotine (including, but not limited to, cigarettes, cigars, electronic cigarettes, chewing tobacco, snuff, pipes, nicotine gum and/or patches)?  
Please select the best answer.

- Yes  
 No

- Provides **no clear social norm**
- Applicants may assume that the norm is to **not** have used tobacco products.
- Since they want to stay within the norm, they may **fail to disclose** tobacco use.



Here is the standard question wording, that have in our opinion several drawbacks. Firstly, it's important to understand that humans have a natural desire **to fit in with** what is considered '**normal**' in society. When it comes to disclosing tobacco use, applicants may hesitate if they believe it deviates from the norm. As you can see, the standard question wording is phrased in a neutral manner. **This leaves room for interpretation and may lead applicants to underreport their usage due to perceived social stigma.**

## Tobacco: Questionnaire A – Assume the behavior exists



Which of these tobacco products have you ever used?  
*Please select all that apply.*

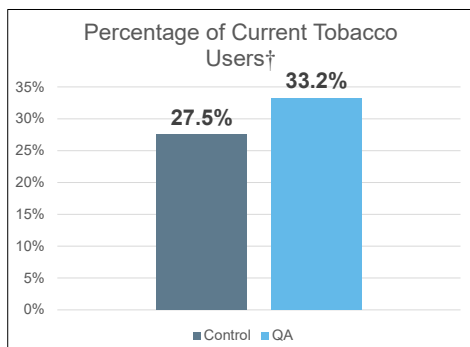
- Cigarettes
- Cigars
- Electronic cigarettes
- Chewing tobacco
- Snuff
- Pipes
- Nicotine gum/ Nicotine patches
- I have never used these products.

- **Clearly states** social norm – to have used tobacco products
- Puts **applicants at ease** and encourages full disclosure

Knowing this, in our redesigned questionnaire, we took a different approach. Our goal is to create an environment where applicants feel comfortable being truthful. Instead of leaving the norm ambiguous, **we clearly stated that tobacco use is quite common.** In other words, we assume the behavior exists. This small change might put applicants at ease and encourage full disclosure.



## Tobacco: Results



21% increase in disclosure\*\*

†Those who currently use tobacco products or who gave up using tobacco products less than 12 months previously

\*\*Significant at the 1% level



Looking at results, we saw a 21% increase (going from 27% to 33%) in disclosure for current tobacco users. **This shows that by simply reframing the question to assume that a behavior exists, we can improve the accuracy of the information provided.**

## 8. Summary and Conclusion

## Summary and Conclusion



### • Takeaways

- Asking about mental health conditions separately increased disclosure.
- Re-asking about important medical conditions increased disclosure.
- Building trust with the applicant was not effective in increasing disclosure, except when combined with an honesty pledge.

### • Behavioral science principles can improve disclosure rates by over 100%!

- Better experience for applicants
- Valid contracts
- Benefits when they're most needed



So to wrap-up, what were our main findings?

Well we saw that asking about mental health conditions separately increased disclosure compared to asking about them in one big list. Also, re-asking about important medical conditions led to extra disclosure for those conditions. Unfortunately, our building trust treatment for mental health was not that effective at increasing disclosure – it seems like that kind of language is not enough to help applicants trust the insurance company.

But of course I think the big takeaway here is that behavioral science principles do in fact work to improve disclosure rates in life insurance applications, sometimes by as much as over 100%. This is really encouraging because it means we can use these tools to improve the experience for applicants, ensure a valid contract, and make sure that we are able to pay out benefits when they are most needed.

Full Results Coming Soon



**Results** to be published in May

- Full **report** on industry survey and experiment
- Interactive **dashboard**

**Reach out** to the SCOR Behavioral Science team with any questions!

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- [dcharles@scor.com](mailto:dcharles@scor.com)



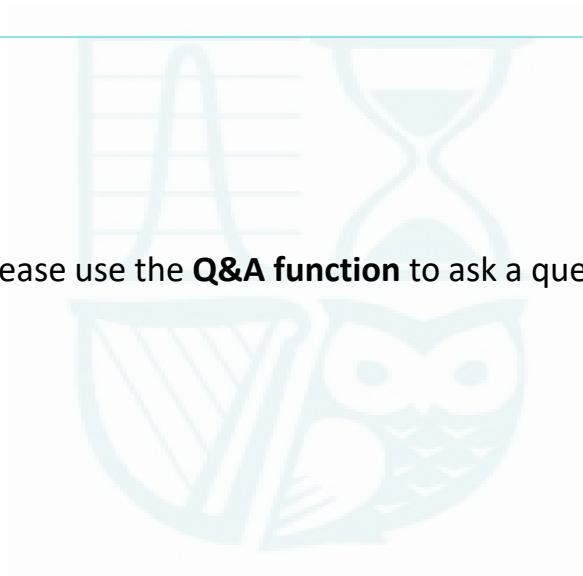




## Q&A

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Please use the **Q&A function** to ask a question





# Thank You

SAI Life - Life Reinsurance and Innovation Series



Thank you so much for your attention and I look forward to any questions or comments you might have!

