



BE Honest: How Behavioral Economics Can Help Reduce Disclosure Gaps And Improve Customer Journeys

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Abstract

Few industries are as reliant on customer honesty as life and health insurance. The use of new data sources to assess mortality and morbidity risk will undoubtedly change how we price and underwrite business in the future, but in many markets we are almost entirely dependent on applicant disclosures.

We would like to think people are completely honest and accurate when applying for insurance, but this is often not the case. This can lead to miscalculated and mispriced risk for insurers, and for consumers, it can mean higher average premiums and invalidated policies.

Fortunately, solutions exist that can reduce the disclosure gap. RGA's Behavioral Science team has recently tested potential solutions through randomized control trials involving more than 20,000 individuals from 10 key markets (Australia, Canada, France, Hong Kong, India, Malaysia, Singapore, South Africa, U.K. and U.S). The results highlight simple and practical steps insurers can take to improve disclosures and customer journeys. Importantly, the research shows that rather than there being a trade-off between more accurate disclosure and quicker completion times, these better designed questions can deliver both.

Understanding the disclosure gap

Legendary advertising genius David Ogilvy once said: “Consumers don’t think how they feel. They don’t say what they think and they don’t do what they say.” Clearly, he understood disclosure gaps as this sentiment applies quite easily to insurance applicants.

There is a consistent gap between what insurance applicants say they do and have experienced, and what would be expected based on population averages. Research by the medical testing and diagnostics company ExamOne, for example, shows that 18.2% of U.S. life insurance applicants fail to declare they are obese or morbidly obese,¹ and that 22.9% of applicants do not honestly disclose the extent of their tobacco usage.²

There are many reasons for this disclosure gap, and inaccuracy on behalf of the applicant may be intentional or unintentional.

Intentional inaccuracy can be driven by financial motives — a desire to ensure coverage and reduce premiums. Applicants are making an economic cost-benefit analysis, weighing the potential gain against the probability of getting caught and the magnitude of punishment. Based on this hypothesis, fraud and cheating should be combated through changing the cost-benefit analysis, i.e., increasing the probability of getting caught and subsequent punishment.

However, if people are truly performing a cost-benefit analysis, then standard economics would predict a higher level of cheating and dishonest behavior than we are seeing. The likelihood of getting caught for making dishonest disclosures is slim and the severity of punishment is small, making cheating appear to be the economically rational choice.

This behavior reflects what we see in everyday life. Research finds that when participants are faced with the opportunity to cheat with no external consequences to cheating and substantial potential gain from cheating, participants still did not cheat much, or as much as they should based on economic factors alone.

Research into dishonesty suggests that given the opportunity, most of us will cheat a little bit, but we will not cheat to such a degree that we preclude a positive view of ourselves. This prevailing truth of consumer dishonesty is evident in the insurance industry. Most of these applicants would not consider themselves dishonest people but can rationalize a little cheating while simultaneously maintaining a positive self-perception.

This suggests that there are further underlying motivations for intentionally inaccurate disclosures. One key explanation is that while inaccuracies might be intentional, they may be driven by psychological rather than financial motives. Many of us have a desire not to admit difficult things, such as weight or alcohol consumption, to oneself or others.

In addition, insurers must realize that not all inaccurate disclosures are intentional. It appears that many application questions are just too difficult for people to answer accurately. This difficulty can be caused by an applicant's lack of knowledge and understanding but can be also influenced by the applicant's desire to use minimal mental effort when answering questions. Small, seemingly irrelevant details that make a task more challenging or effortful can make the difference between someone carrying out a behavior and not.

Closing the disclosure gap

Behavioral science has shown that the way a question is phrased and the context in which it is asked can significantly impact the accuracy of the responses it elicits. RGA research suggests there are three key principles for increasing the accuracy of applicant disclosures: Make it easier to be accurate, easier to be truthful, and harder to lie.

Make it easier to be accurate

The key to making questions easier to answer accurately is to reduce the amount of mental processing and working memory, known as "cognitive load," required to do so. Applicants tend to want to answer questions quickly, and will often use mental shortcuts instead of giving full thought and time. In the drive to simplify applications by reducing the number of

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questions, insurers often combine multiple questions into one, thereby increasing the cognitive load required to answer each question.

Ways to minimize cognitive load for applicants include:

- Use simple, everyday language — leave no room for confusion or ambiguity.
- Avoid asking about more than one topic in a question — numerous simple questions are easier to process than one long question.
- Prompt memory by listing possible answers — drop-down menus, scales, and other methods can replace free-text responses.

Make it easier to be honest

Often people do not want to admit to their behaviors if there is shame or social stigma attached. They would rather shade the truth, or even be outright untruthful, than cause themselves psychological pain. Insurers therefore need to design questions in ways that let applicants feel comfortable that their behavior is acceptable and normal.

Ways to phrase questions that can normalize and destigmatize applicant answers include:

- Assuming the behavior exists — ask “When did you last...?” rather than “Have you ever...?”
- Minimizing an applicant’s feeling that a behavior is at the extreme of acceptable norms — provide multiple answer options that are weighted toward extremes of behavior.

Make it harder to lie

No one is completely honest all the time. Most people tend to shade or stretch the truth, or even outright lie, up to the level that maintains their self-image as reasonably honest individuals. This is possible when it is easy to do so and easy to self-justify having done so.

Ways to make it harder for the applicant to self-justify lying include:

- Not making the “wrong” answer obvious — avoid binary questions and clear cut-off points.
- Increasing an applicant’s sense that answers are being monitored and making lying a more deliberate and salient act — ask for double-confirmation.
- Making lying more psychologically jarring — use language that triggers an emotional response.

RGA experiment design

RGA's most recent research tested and proved simple yet effective ways to put these principles into practice.

Randomized control trials involving more than 20,000 participants were conducted in 10 markets (Australia, Canada, France, Hong Kong, India, Malaysia, Singapore, South Africa, U.K. and U.S.). Rather than choosing representative samples in each market, key demographic and insurance coverage data was captured to enable sub-analysis.

Figure 1: Markets included in the experiment



Participants were asked to complete a healthy living survey. They were first asked to complete a set of screening questions for which they were provided a financial reward and told only those deemed as having suitably healthy lifestyles would be selected to answer the rest of the survey, for which they would receive an additional sum. The purpose was to create a financial incentive to be less than truthful in the screening questions, a similar incentive structure that exists in the context of insurance policy applications. In reality, all the key questions we wanted to test were in the screening section, and all participants were selected to answer the rest of the survey and therefore were eligible for the full financial incentive.

We tested multiple versions of application questions in the following disclosure categories:

- Alcohol consumption
- Tobacco usage
- Controlled substances
- Prior and existing medical conditions
- Family history of prior and existing medical conditions
- Height and weight

In addition, we tested the impact on disclosure from including an honesty confirmation statement positioned at the start of the survey.

Respondents were presented with one randomly determined version of each question. One version of each question or statement was a control version based on current standard practice across the life insurance industry. To create the control questions, application forms from 15 insurers were analyzed. The applications covered fully underwritten, simplified issue, and final expense products.

Running the experiment as a randomized control trial meant relative disclosure rates could be compared in response to each version of each question. The threshold for significance was set at the 99.9% confidence level ($P < 0.001$) to ensure any conclusions drawn were robust and fit for implementation into real-life application forms.

RGA Experiment results

Honesty statement

All insurance applications request confirmation that the answers given by the proposed insured are accurate to the best of their knowledge. The format and wording of these statements vary across insurers and countries, but they share a few things in common: they are often lengthy, contain legal language, and found toward the end of the application, after the disclosure questions.

The format matches their main purpose, which is to provide the insurer legal redress if an applicant has made inaccurate disclosures. Additionally, insurers generally presume that, by highlighting there are legal consequences to mis-disclosing, the confirmation statements influence the truthfulness of applicant responses. The reality is that the impact of these statements is likely limited.

One reason is the positioning of the statement at the end of the application form. Previous research has already shown that placing the statement at the start of the application increases disclosure as it primes subsequent behavior.⁴ We wanted to take this research further and test whether changing the content of the statement can further improve disclosure.

Typical honesty statements use precise legal language. Words such as 'certify,' 'confirm' and 'acknowledge' are common. If we separate the honesty statement at the start of the application from the legal statement at the end, then we are free to use language which is simpler, colloquial and has stronger emotional resonance.

We hypothesized that words such as 'truthfully' and 'promise' trigger more automatic responses and would increase disclosures. We make promises and talk about truth in everyday life much more than we 'certify' things. In addition, we hypothesized that asking for a double confirmation would increase disclosures. Being asked to confirm twice, with the second confirmation phrased as 'I promise to tell the truth,' raises the salience of being dishonest.

After being presented with the honesty statement, we asked respondents to disclose how many portions of fruit and vegetables, on average, they think they eat a day. We were therefore measuring two things: how many people confirmed their honesty, and the average fruit and vegetable disclosure rates.

Statement A: Standard legal language	Statement B: Colloquial language and double confirmation
<p>I certify that the statements made in this application are, to the best of my knowledge and belief: complete; true; and correctly recorded.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>	<p>Can you answer our questions truthfully and ensure that your answers are complete and accurate?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>Sorry to force the point but we really do only want honest responses so do you promise to tell the truth?</p> <p><input type="checkbox"/> I promise to tell the truth! <input type="checkbox"/> I can't make that promise</p>

RESULTS	Statement A: Legal	Statement B: Colloquial	Statement C: Colloquial and double confirmation
Total respondents	6,667	6,670	6,671
Percent confirmed honesty and continued	100.0%	99.0%	98.3%
Average no. fruit & veg	4.04	3.98	3.79

The honesty statement using colloquial language and double confirmation has a small but significant impact on levels of confirmation and subsequent disclosures.⁵ The statement using just the colloquial language had a smaller, yet still significant, impact.

Perhaps the most striking of the results is the 1.7% who, when faced with the fully enhanced honesty statement, realize they cannot commit to answering truthfully and so drop out of the survey altogether. While this might be recorded as a drop in conversion rate, in effect it is removing those people who just know they do not have the information or the inclination to be truthful.

Not only did those who knew they could not be honest and/or accurate drop out of the survey, the subsequent fruit and vegetable disclosure shows that those who did continue with the survey were more honest and/or accurate.

Those who were presented with the honesty statement that included the colloquial language and double-confirmation, took, on average, almost a minute and a half longer to complete the full survey (average completion time 13.7 mins vs 11.3 mins). This suggests the promise did make dishonesty and inaccuracy more salient, encouraging them to invest more time in providing the correct answers.

The results were similar in each country but as the magnitude of the effect is small, not all country level results are statistically significant.

Alcohol

Alcohol disclosure is one of the most challenging to elicit accurate responses. Typically insurers ask applicants to state, on average, how many alcoholic drinks they consume per week. But it may not be clear what is meant by 'average.' Over how long a period must the average be taken? A month, a year, 10 years?

Say if it is one year, are we really asking someone to recall every single drink they have had in the last year, add them up and then divide by 52? This is a task no one will do, except perhaps the most infrequent of drinkers.

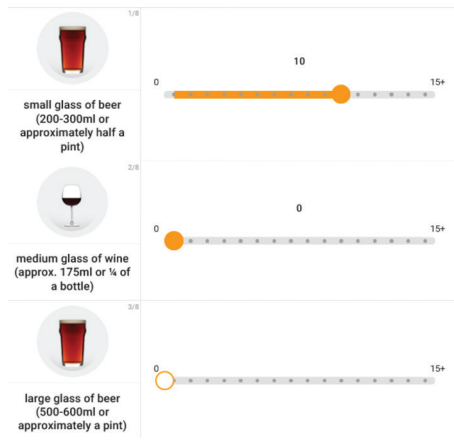
This means applicants must try to replace the question posed with an easier one they are able to answer, such as: What did I drink last week? How much do I think I 'should' drink on average? What do I drink in a 'good' week?

The question may also be hard for other reasons. Many people may feel embarrassed or ashamed to admit how much they drink if it is more than recommended or more than socially accepted. Some people may not even admit to themselves how much they drink.

We designed three alternative questions designed to make it easier to answer the question. Question B provided respondents with lists of common drinks and asked them to answer how many of each they consume on average. This list acts as a memory prompt and helps respondents go through their typical weekly routine ("Well, I always have a couple of pints of beer after playing football on a Tuesday and I always have a glass of wine when I get home on a Friday," etc.). It reduces the cognitive load needed to answer the question.

In Questions C and D we replaced the free-text response next to each drink with a moveable scale. Question C had a scale that went up to a maximum of '10+ drinks per week' and Question D a scale that went up to a maximum of '15+ drinks per week.' The aim of the scales was to help respondents feel more comfortable admitting the truth by normalizing and destigmatizing the behavior.



Question A: Free text response	Question D: Memory prompts and scales
<p>On average, how many alcoholic drinks do you consume per week?</p> <p>[FREE TEXT]</p>	<p>On average, how many alcoholic drinks do you consume per week?</p>  <p>NB: Participants were presented with a list of 6 different alcoholic drinks.</p>

RESULTS	Question A: Free text	Question B: Memory prompts with free text	Question C: Memory prompts with 10+ scale	Question D: Memory prompts with 15+ scale
Total respondents	4,909	4,956	5,002	4,990
Average drinks per week	3.15	4.58	6.95 ⁶	7.84

The alternative versions of the questions progressively and significantly increased the level of disclosures. Question D, which combined the memory prompts and high-value scale, increased disclosure by more than 2.5 times compared to Question A.

The sliding scales appear to be the most significant influencer on disclosures. A respondent who drinks eight large beers a week probably knows that is more than is recommended so may find it hard to admit this and enter it as free-text response. Introducing a 10+ sliding scale makes it easier for the applicant as it suggests there are other people who drink more. The 15+ sliding scale makes it even easier to be honest as eight is only about halfway along the scale, and so the respondent likely feels their consumption is normal and socially acceptable.

The impact of the sliding scales was highest in the Asian markets, particularly India, where disclosure rates were more than 6 times higher in Question D than Question A (12.6 drinks a week compared to 1.8). This may suggest the impact of normalizing the answers is highest in markets where there is the most stigma attached to excessive alcohol consumption.

Importantly, Question D was also the quickest version of the question to answer (almost 30 seconds quicker than Question A). This highlights that improving disclosure and customer journeys often go hand in hand. While D may look like a longer question than A, it is much simpler to answer.

Smoking

Tobacco usage is probably the most common question asked of life insurance applicants. Unfortunately it is also a question where we know disclosures are much lower than reality. One problem is that in the drive for simplicity, tobacco questions are often binary. “Do you smoke? Yes or No.”

This creates two problems. First, it makes the underwriting rule clear. It will be obvious to most respondents what the ‘wrong’ answer is.

Second, for low-frequency smokers (perhaps someone who smokes only a few a week), there will be a sense of unfairness and psychological discomfort at having to categorize themselves as being equivalent to someone who smokes 40 cigarettes a day. Even though they smoke, they may not think of themselves as a smoker.

Our approach was to normalize and destigmatize tobacco usage by assuming the behavior. Rather than ask “Do you use...?” or “Have you used...?”, we asked, “When was the last time you used?” and “How frequently do you use?”

There was a list of answer options, one of which was ‘never’ and then multiple further options, weighted towards the most recent and high-frequency behavior. This means that respondents who only smoke a few cigarettes a week feel comfortable admitting this as there are clearly others who smoke much more than they do.

Tobacco and cigarette usage disclosure is significantly higher in Question B than in Question A on aggregate and across all countries. Similarly to the alcohol question, the largest impact is in the Asian countries, where Question B led to approximately 75% higher disclosure.

It is important to note that while we may be capturing more granular detail on the frequency of someone’s tobacco usage, this does not mean we are suggesting underwriting rules vary by smoking frequency. We are providing multiple frequency options in the question because it increases the disclosure and, in particular, the disclosure of low frequency smokers who might answer ‘no’ to a binary question. Question B led to a higher disclosure rate as it encouraged a greater number of low frequency smokers to admit usage. Using this approach smokes out the smokers.

Question B took respondents approximately 30 seconds longer to answer. However, this appears to result from more respondents disclosing any level of smoking and therefore answering the additional questions (which they do not do if they answer ‘no’ in the binary question).



Question A: Binary grouped question	Question B: Assumed behavior and degrouped
<p>Have you ever used tobacco or nicotine substitute in any form including but not limited to cigarettes, cigars, pipes, chewing tobacco, snuff, electronic cigarettes, vaporizer (vape), nicotine gum or patches?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If yes:</p> <p>a. What type(s) of tobacco or nicotine substitute(s) have you used?</p> <p>b. When did you last use this tobacco product or nicotine substitute(s)?</p> <p>c. How frequently do you use, or did you use, this tobacco product or nicotine substitute(s)?</p>	<p>When was the last time you used any of the following tobacco or nicotine substitutes?</p> <p>Cigarettes</p> <p><input type="checkbox"/> In the past month <input type="checkbox"/> In the past 6 months <input type="checkbox"/> In the past 12 months <input type="checkbox"/> 1-5 years ago <input type="checkbox"/> 6-10 years ago <input type="checkbox"/> More than 10 years ago <input type="checkbox"/> Never</p> <p>Cigars</p> <p><input type="checkbox"/> In the past month <input type="checkbox"/> In the past 6 months <input type="checkbox"/> In the past 12 months <input type="checkbox"/> 1-5 years ago <input type="checkbox"/> 6-10 years ago <input type="checkbox"/> More than 10 years ago <input type="checkbox"/> Never</p> <p>If answered anything except 'never' to any of the products:</p> <p>How frequently do you use, or did you use XXX?</p> <p>Cigarettes</p> <p><input type="checkbox"/> 40 or more per day <input type="checkbox"/> 30 or more per day <input type="checkbox"/> 20-29 per day <input type="checkbox"/> 10-19 per day <input type="checkbox"/> 1-9 per day <input type="checkbox"/> Less than 7 per week <input type="checkbox"/> Less than once a week ONCE A MONTH</p> <p>NB: The list of tobacco or nicotine products matched that in Question A. respondents were presented with one product at a time and asked to respond. There was some local variation of products e.g the inclusion of Beedis in India.</p>

RESULTS	Question A: Binary & grouped	Question B: Assumed behavior and degrouped
Total respondents	6,510	6,669
Tobacco disclosure rate (have ever used)	34.95%	51.49%
Tobacco disclosure rate (within the last year)	19.25%	30.23%
Cigarette smoker disclosure rate (have ever used)	20.45%	45.75%
Cigarette smoker disclosure rate (within the last year)	10.95%	23.50%

Controlled substances

Controlled substances questions tend to suffer from the same problems as those related to alcohol and smoking. As with smoking, the question tends to be binary, but in addition the questions often group multiple controlled substances together. These substances tend to have varying levels of stigma attached, as well as differing legal implications. By grouping them together into one binary question, a person who used marijuana once five years ago is put into the same category as a regular heroin user. It is another example of a question reflecting the underwriting rule, which makes the 'wrong' answer very obvious.

Similarly to tobacco, our approach was to normalize and destigmatize controlled substance usage by assuming the behavior. Rather than ask "Do you use?" or "Have you used?" we asked "When was the last time you used?" and "How frequently do you use?" There was a list of answer options, one of which was 'never' and then multiple levels of frequency and recency, weighted towards the most recent and high frequency behaviors.

In markets where marijuana is legal for medical use, we tried an additional approach to help normalize and destigmatize marijuana usage. We first asked respondents to disclose marijuana for medical use before asking them about any recreational use. We hypothesized that placing marijuana in a medical context first would make a respondent feel more comfortable about admitting recreational usage, even if they do not use it for medical reasons.

Disclosure of any drug use in the previous 10 years was almost double in Question B compared to Question A on aggregate and in all markets. Marijuana disclosure was also significantly higher in aggregate but not significantly so in all countries. Just as with alcohol and tobacco usage, the difference between Question A and Question B was particularly strong in Asian markets.

In Question C, the marijuana-specific question, marijuana disclosure was significantly higher than both other questions on aggregate and in all countries. Disclosure was 2.5 times higher than Question A.

Similar to the tobacco question, Question B took respondents approximately 40 seconds longer to answer. However, this again appears to be a result of more respondents disclosing any level of usage and therefore answering the additional questions (which they do not do if they answer 'no' in the binary question).



Question A: Binary grouped question	Question B: Assumed behavior and degrouped
<p>In the last (10) years have you used marijuana, cocaine, barbiturates, narcotics, stimulants, hallucinogens or other controlled substances (other than as prescribed by a physician)?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If “yes”:</p> <p>a. What type(s) of controlled substances have you used?</p> <p>b. How frequently are you using any of the controlled substances?</p> <p>c. When did you last use any of the controlled substances?</p>	<p>When was the last time you used any of the following controlled substances (other than as prescribed by a physician)?</p> <p>Marijuana</p> <p><input type="checkbox"/> In the past month <input type="checkbox"/> In the past 6 months <input type="checkbox"/> In the past 12 months <input type="checkbox"/> 1-5 years ago <input type="checkbox"/> 6-10 years ago <input type="checkbox"/> More than 10 years ago <input type="checkbox"/> Never</p> <p>Cocaine</p> <p><input type="checkbox"/> In the past month <input type="checkbox"/> In the past 6 months <input type="checkbox"/> In the past 12 months <input type="checkbox"/> 1-5 years ago <input type="checkbox"/> 6-10 years ago <input type="checkbox"/> More than 10 years ago <input type="checkbox"/> Never</p> <p>If answered anything except ‘never’ to any of the products:</p> <p>How frequently do you use, or did you use XXX?</p> <p>Marijuana</p> <p><input type="checkbox"/> More than 10 times a day <input type="checkbox"/> 6-10 per day <input type="checkbox"/> 2-5 times per day <input type="checkbox"/> Once a day <input type="checkbox"/> Less than 7 per week <input type="checkbox"/> Less than once a week <input type="checkbox"/> Less than once per month</p>

Question C: Marijuana specific, medical context first
<p>Within the past ten (10) years, has a member of the medical profession prescribed marijuana, cannabis or THC in any form?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If “no”: Have you otherwise used marijuana, cannabis or THC in any form? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If “yes” to either: When did you last use marijuana, cannabis or THC in any form?</p> <p><input type="checkbox"/> In the past month <input type="checkbox"/> In the past 6 months <input type="checkbox"/> In the past 12 months <input type="checkbox"/> 1-5 years ago <input type="checkbox"/> 6-10 years ago <input type="checkbox"/> More than 10 years ago</p> <p>How frequently do you use, or did you use marijuana, cannabis or THC in any form?</p> <p><input type="checkbox"/> More than 10 times a day <input type="checkbox"/> 6-10 per day <input type="checkbox"/> 2-5 times per day <input type="checkbox"/> Once a day <input type="checkbox"/> Less than 7 per week <input type="checkbox"/> Less than once a week <input type="checkbox"/> Less than once per month</p>

RESULTS	Question A: Binary & grouped	Question B: Assumed behavior & degrouped	Question C: Marijuana only, medical first
Total respondents	8,173	8,339	3,333
Disclosure rates			
All drugs	9.90%	18.18%	
Marijuana only	7.55%	11.84%	19.11%

Medical history

Answering a medical conditions question should be easy. Most people know if they have had the types of serious illness insurers ask about, and there is little stigma attached to most of these conditions. However, it does appear that some people misdisclose by mistake. They fail to read the question properly and miss key conditions.

In part, this is a result of too many conditions being asked in one question. Often we might see up to 10 conditions listed in one question, which means by the time the respondent has finished reading it, they have forgotten what they are being asked. A respondent will often have to read it two or three times to understand it. It can take a lot of cognitive load just to read the question, let alone answer it.

Often questions are designed in this way in order to reduce the number of questions in an application. Technologists tell us we need not 20, not 10, but five, or maybe fewer questions, to make it quick and easy for applicants. But it is important to remember that fewer questions often replace simpler questions with longer, harder questions. Quite frequently, an applicant would rather answer 10 simple questions than three complex ones. The three complex questions require more cognitive load and take longer to complete. Having fewer questions is a worthy objective but only if this is achieved by asking about fewer conditions.

In Question A, respondents were asked about 11 groups of conditions. If they answered 'yes' to a group, they were then asked to specify the condition in a further question. In Question B, all conditions in each group were presented as a list.

There was a small (1.8%) but significant difference between Question B and Question A at the aggregate level. At a country level, disclosure was always higher in Question B but only significantly so in the U.S. and Singapore. The lack of significance seems likely to be driven by the small effect size.

Importantly, responders were 20 seconds quicker answering Question B. This gain shows that better disclosure and improved customer journeys often go hand-in-hand and that shorter questions do not necessarily mean a simpler process.

While the disclosure effect size may be small, the reduced completion time suggests the combined benefit means this is a question change worth making.

Question A: Grouped conditions	Question B: Individual conditions
<p>Have you ever been diagnosed, treated, tested positive for or been given medical advice by a member of the medical profession for any of the following:</p> <ol style="list-style-type: none"> Any heart or blood vessel disorder(s) such as (but not limited to) coronary artery disease, chest pain, high blood pressure, high cholesterol, irregular heartbeat, congenital heart disease or defect, valvular heart disease, heart failure or heart murmur Any disorder(s) of the circulatory system such as (but not limited to) stroke, transient ischemic attack (TIA), aneurysm, carotid artery disease, or peripheral vascular disease Any disorder(s) of the lungs or respiratory system such as (but not limited to) asthma, chronic bronchitis, chronic obstructive pulmonary disease (COPD), emphysema, tuberculosis or sleep apnea <p>NB: Respondents were presented with a total of 11 groups of conditions/diseases.</p>	<p>Have you ever been diagnosed, treated, tested positive for or been given medical advice by a member of the medical profession for any of the following:</p> <ol style="list-style-type: none"> Any heart or blood vessel disorder(s) <ul style="list-style-type: none"> <input type="checkbox"/> Coronary artery disease <input type="checkbox"/> Chest pain <input type="checkbox"/> High blood pressure <input type="checkbox"/> High cholesterol <input type="checkbox"/> Irregular heartbeat <input type="checkbox"/> Congenital heart disease or defect <input type="checkbox"/> Valvular heart disease <input type="checkbox"/> Heart failure <input type="checkbox"/> Heart murmur <input type="checkbox"/> Other — please specify Any disorder(s) of the circulatory system <ul style="list-style-type: none"> <input type="checkbox"/> Stroke <input type="checkbox"/> Transient ischemic attack (TIA) <input type="checkbox"/> Aneurysm <input type="checkbox"/> Carotid artery disease <input type="checkbox"/> Peripheral vascular disease <input type="checkbox"/> Other — please specify Any disorder(s) of the lungs or respiratory system <ul style="list-style-type: none"> <input type="checkbox"/> Asthma <input type="checkbox"/> Chronic bronchitis <input type="checkbox"/> Chronic obstructive pulmonary disease (COPD) <input type="checkbox"/> Emphysema <input type="checkbox"/> Tuberculosis <input type="checkbox"/> Sleep apnea <input type="checkbox"/> Other — please specify <p>NB: Respondents were presented with a total of 11 groups of conditions/diseases.</p>

RESULTS	Question A: Grouped conditions	Question B: Individual conditions
Total respondents	10,004	10,004
Disclosure rate	60.20%	61.98%

Family history

Similar to the medical history question, family history questions are not psychologically hard to answer, but the phrasing of the question often requires unnecessary cognitive load.

A typical question will ask if any of the applicant’s biological parents or siblings has been diagnosed or treated for any conditions presented in a list. This could be a lot of information for a person to remember and report, even if they know the information.

We created a simpler approach to test the impact of simplified questioning. Respondents were first asked how many siblings they had and were then presented with the four conditions for each family member, one by one.

Question A: Grouped question	Question B: Multiple questions
<p>Among your biological parents or siblings, has anyone been diagnosed or treated by a member of the medical profession for heart disorder, stroke, diabetes or cancer?</p> <p>ASKED SUBSEQUENT QUESTIONS</p>	<p>Please enter the number of siblings you have (living or dead).</p> <p>DROP DOWN MENU</p> <p>Have any of your immediate biological family members been diagnosed or treated by a member of the medical profession for:</p> <p>Father <input type="checkbox"/> Heart disorder <input type="checkbox"/> Stroke <input type="checkbox"/> Diabetes <input type="checkbox"/> Cancer <input type="checkbox"/> None of these</p> <p>Mother <input type="checkbox"/> Heart disorder <input type="checkbox"/> Stroke <input type="checkbox"/> Diabetes <input type="checkbox"/> Cancer <input type="checkbox"/> None of these</p> <p>Sibling one <input type="checkbox"/> Heart disorder <input type="checkbox"/> Stroke <input type="checkbox"/> Diabetes <input type="checkbox"/> Cancer <input type="checkbox"/> None of these</p>

RESULTS	Question A: Grouped question	Question B: Multiple questions
Total respondents	10,003	10,004
Disclosure rate	50.70%	61.73%

Question B had significantly higher disclosure than Question A on aggregate and in all markets except South Africa (where the direction was the same as the other markets but the difference was not quite as significant). Despite Question B requiring respondents to answer multiple questions, it took respondents an average of only 7 seconds longer to complete than Question A, supporting the notion that the cognitive load is reduced, thereby making the process easier.

Height and weight

What simpler question could there be than height and weight? For many people it is surprisingly hard. The majority of people do not measure or weigh themselves regularly. This might not matter for height, which rarely fluctuates, but it does for weight. We are therefore asking people either to weigh themselves, which is unlikely to be easy for many, or to guess at an answer.

It may also be hard psychologically. Many people do not weigh themselves because they do not want to know the answer. They may think they weigh more than they should and are disappointed and embarrassed by it. Many people also see being overweight as temporary, that by this time next month they will definitely have started that diet or going to the gym. They therefore prefer to give what they see as their goal weight rather than their actual 'current' weight.

We tested two approaches. In Question B, we used sliding scales rather than a free-text entry for both the height and weight question, just as we did in the alcohol question. The scales went up to 200kg/400lbs, so even someone who was overweight might only be halfway along the scale, helping to normalize and destigmatize the answer.

In Question C, we kept the free-text entry but asked an additional question. The question empathized with respondent, recognizing that not everyone weighs themselves regularly and it is not always easy to provide an accurate figure. It then asked them whether they think they weighed a little bit more than the estimate they had just provided, a little bit less, or were confident this was their exact weight.



Question A: Free text	Question C: Free text, double confirmation
<p>What is your current height?</p> <p>[FREE TEXT]</p> <p>What is your current weight?</p> <p>[FREE TEXT]</p>	<p>What is your current height?</p> <p>[FREE TEXT]</p> <p>What is your current weight?</p> <p>[FREE TEXT]</p> <p>We recognize that not everyone weighs themselves regularly so it is not always easy to provide an accurate figure. If you have not weighed yourself within the last week, please highlight which of the following is true:</p> <ul style="list-style-type: none"> ▪ I think I may weigh a little bit more than my estimate ▪ I think I may weigh a little bit less than my estimate ▪ I'm confident this is my exact weight <p>How much more/less do you think you weigh?</p> <ul style="list-style-type: none"> ▪ 0-2 lbs/kg ▪ 3-5 lbs/kg ▪ 6-10 lbs/kg ▪ More than 10 lbs/kg

RESULTS	Question A: Free text	Question B: Scales	Question C: Free text and double confirmation
Total respondents	6,047	6,446	6,081
Average height (cm)	166.72	166.18	166.80
Average weight (kg)	71.42	74.20	71.82
Average BMI	26.10	27.55	26.12

Average BMI disclosure was significantly higher in Question B than in Question A on aggregate and in all markets, except for Australia (where Question B disclosure was still higher but not significantly so). Height disclosure was almost identical in both questions, strongly suggesting that the impact of the scales comes from the destigmatization effect.

In Question C, initial disclosures were almost identical to Question A, which is to be expected given this part of the question is identical. When respondents were then asked to confirm their estimate, only just over half said they were confident it was their exact weight. Almost one-third of respondents admitted they probably weigh more than the estimate they had just provided a matter of seconds ago and 15% than they probably weigh a little less.

For those who say they weigh more, this leads to an increased disclosure of 1.21 BMI points. For those who say they weigh less, this leads to a reduced disclosure of 0.84 BMI points.

These Question C results clearly show that when respondents do not know their exact weight, they are more likely to round their estimate down than up. Empathizing with the respondents and not making them feeling guilty for not knowing (or not immediately admitting) their exact weight enables them to feel comfortable admitting the truth both to themselves and to others. On average, respondents took 30 seconds longer to answer Question C than Question A, suggesting the additional element to the question made the respondents think more carefully and really consider their answer.

Future experiments will test combining the sliding scale in Question B with the double-confirmation in Question C.

Conclusion

This research shows that simple changes in the way application questions are phrased can increase disclosure significantly. This clearly has benefits for insurers and reinsurers, as more accurate responses can improve underwriting and pricing decisions. It also has clear benefits for the applicants themselves, as more accurate and personalized risk assessments can reduce premiums for those who may previously have found themselves categorized alongside poorer risks.

Better questions can also improve customer journeys, making it simpler and quicker to apply for cover. As our research has highlighted, creating questions that are easy to answer is more important than simply trying to decrease the number of questions. A larger number of clearly worded questions can increase the accuracy of responses without increasing the time to answer.

Importantly, the research also shows that better disclosure and quicker completion times often go hand in hand. The key is making questions *simpler*, and this must be a higher priority than trying to reduce the number of questions.

Over the next 12 months, RGA will continue to conduct research to determine the best ways to ask questions and structure an application form. It is clear that just rephrasing questions so that it is easier for applicants to respond accurately and honestly can make a significant difference. This will likely result in lower unintentional misrepresentation. Unfortunately, these techniques are unlikely to change the behavior of those who are determined to misrepresent themselves. RGA is also exploring other ways to address this problem.

In addition, we will focus not just on how a question is asked, but by whom. Our research to date has focused on direct-to-consumer application disclosures, but often there is an intermediary in the process, and the role of the messenger can often outweigh that of the message. For example, a financial adviser could alter the impact of these strategies as insurers must rely on how these advisers communicate the questions. We are also testing the influence of different messengers and the relative effects on disclosure rates of applying online, face-to-face, by telephone, and with artificial intelligence.

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5. Throughout the paper, results presented as 'significant' are significant at the 99.9% confidence level ($P < 0.001$).
6. To ensure a fair comparison between the disclosure on the 10+ and 15+ scale, we deemed a top answer on each scale (i.e., 10+ or 15+) to equal 15 drinks per week. This likely overestimates the disclosure on the 10+ scale, suggesting the impact of increasing the scale to 15+ was even greater. Assuming a top answer on the 10+ scale equated to 10 drinks per week gave an average disclosure of 6.5 drinks per week, showing that even at its lowest possible range, the 10+ scale significantly increased disclosure compared to having no scale.