



Life & Health Trend Spotlight

Lifestyle risk factors: A new frontier for risk assessment

Swiss Re expands research into six key areas

Age. Build. Blood pressure. Like 'em or not, these numbers tell a story about each of us that is measurable and precise. Perhaps that's why data points like these have long been the mainstay in an underwriter's arsenal for evaluating mortality risk.

But what about the myriad of other factors that affect our health and longevity? Things so fundamental and far-ranging as what we eat and how much we sleep to where we live? While not so easily quantified, these habits could be just as important for their combined effects on the quality and length of your life.

As science evolves, so does our understanding of how these various factors affect health and longevity. At Swiss Re we want to build on this research through an underwriting lens. By combining the power of new data and causality models with our history of underwriting expertise, we expect to harness a better understanding of what these risk factors mean for the insurance industry.

Can lifestyle risk factors provide a more accurate – or alternative – risk assessment that insurers can use to create a better experience for your customers? We think so.

Today's increasingly hectic and full lifestyles have spawned many effects that erode physiological aspects of our health. These so-called lifestyle factors include sleep, exercise, nutrition, mental wellbeing, the environment and substance use. There are, of course, many more, but we've chosen these six to form the basis for our initial research.



Lifestyle factors meet insurance risk

Evidence of how lifestyle factors affect our health continues to grow, and we're seeing an explosion of wearable and other devices to measure these factors (and theoretically improve resulting behaviour.)

At the same time, there is continued pressure on our industry to assess mortality and health risk using newer data sources. The goal is less underwriting > improved customer journey > easier access to buy protection.

Lifestyle data is a good fit for this new generation of underwriting as it's not only predictive, but also causal. Plus, it's a critical piece in the plan for many insurers who want to engage more with their customers. The idea of creating loyalty by helping customers improve their health is a key strategy for much of the industry.

Traditional clinical measures of risk are also being modified by lifestyle information (often attached to some form of wellness program). Risk pools that seem reasonably homogenous in terms of clinical risk factors, may be quite heterogenous in terms of healthy (or unhealthy) lifestyles. By overlaying this lifestyle information, we can separate these into more discrete groups.

Of course, these lifestyle factors can fluctuate, creating an opportunity to modify risk assessment and price over time based on how an individual's behaviour changes. In addition, as our understanding of these lifestyle factors improves, and other data sources become available, they could become a full or partial substitute for the current "clinical" underwriting model.

The idea is exciting but brings a host of new challenges. Among them, the validity of the data, difficulties of human capacity for sustainable change, and most important the challenge of quantifying exactly how lifestyle factors impact long-term health outcomes, particularly in combination with known traditional clinical risk factors.



The Big Six

The landscape of lifestyle risks is broad, so the first important step is knowing where to focus. The table below offers a look at our first cut based on the underlying risk, why it's thought to be significant and how it might be quantified.

Of course, this list is not exhaustive. Just as there are countless variables that make up a regular day in our own lives, there may be additional risk factors to consider in the future to improve the accuracy of risk assessment .

Lifestyle Risk Factor	Significance	Potential quantifiable parameters
Physical activity	Fundamental to establish baseline metabolism. Affects insulin sensitivity, improves heart health. Strength and mobility are key for healthy ageing.	Regularity of exercise, duration and intensity of physical activity
Sleep	Directly implicated in cognitive functionality, suboptimal conditions lead to chronic mental fatigue and linked to sympathetic dysfunction related to hypertension, diabetes and CVD	Average sleep duration, extent and frequency of deviation from ideal, quality of sleep
Nutrition	Strong link with numerous biological pathways related to inflammation, fat storage, immune response, dyslipidaemia, insulin resistance, diabetes, obesity, autoimmune disease and cancer	Ratio and quantity of primary food group consumption, consumption of processed or ultraprocessed food, fasting, antioxidant, vitamin and mineral intake
Mental wellbeing	Intimately linked to physical health, resilience, recovery from illness and serious psychological diagnoses. Chronic stress linked to sympathetic dysfunction.	Mental stress, anxiety, unhappiness, coping mechanisms and a sense purpose
Substance use	Significant implications on both cognitive function, psychological impact and numerous metabolites form toxins related to liver, cardiac and other organs.	Frequency of use with illicit drugs, caffeine, alcohol, tobacco and medication
Environment	Broad spectrum of pathological implications depending on the element. Examples: carcinogenic (radiation), respiratory illness (air pollution or passive smoking), vitamin D deficiency (lack of sun exposure).	Frequency of exposure to harmful elements, such as air pollutants including second-hand smoke, contaminants, pesticides and radiation



Taking the next steps

Analysing the risks associated with one's lifestyle is complex and deeply interconnected. For example, how much you sleep affects your physical activity, which, in turn, influences your nutrition and food choices. Understanding the causative effects of these risk factors and how they can, or perhaps cannot, be applied to our underwriting process is daunting but necessary.

The term "risk" in traditional underwriting is based on long-term mortality studies and claims and portfolio experience. However, when analysing lifestyle risks there is a much greater focus on the human element and its many vagaries. There are a wide range of interconnected factors – each of which influence numerous complex biological and molecular pathways. Everything is intertwined and connects to the clinical factors we traditionally use like BMI and blood pressure.



Sounds complex – how do we do it?

The key to our success lies in an innovative approach to the research. Most of today's published research focuses on longitudinal studies about a single factor. These are unfortunately littered with confounders, adjustment assumptions, and often dubious conclusions. Biomolecular pathway mapping hasn't traditionally been applied to insurance risk research. As these are the fundamental biological processes that underpin health outcomes, we think it paramount to include them when evaluating someone's health risk.

By assessing biological causation pathways we not only hope to more accurately reflect the risk associated with individual lifestyle factors, but also have better insight into the interaction these factors have with each other and with traditional clinical risk markers.



A world of opportunity awaits

Lifestyle risk factors present many opportunities for our industry; alternative data use, better customer journey and engagement, an ability to improve customer health, and the possibility of underwriting in an entirely new way.

As we advance in this space, a test and learn approach also gives more comfort. More data means more analysis. More analysis means greater accuracy and validation of our research. Combining the power of scientific rigor with data analytics will transform the way we underwrite risk.

We will continue to dig deeper and explore each of the "big six" lifestyle risks so watch this space for more on each one. By combining the power of scientific rigor with our expertise in data analytics and risk knowledge we aim to bring more understanding, discover new insights and share them with our clients. The goal? To help transform underwriting and ensure Swiss Re and our clients are #FutureReadyNow.

Key contributors:



John Schoonbee,
Global Chief Medical
Officer



Rebecca Barwick,
Head of Global
Underwriting R&D



Michael Ducker
Underwriting Research &
Development Analyst

Questions?

Please contact John_Schoonbee@swissre.com or Rebecca_Barwick@swissre.com

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