Expert Views

Prevention in Life Insurance:
An Important Pillar of Healthcare

SCOR
The Art & Science of Risk

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Introduction

With aging populations and an increasing rate of obesity, diabetes mellitus, and other noncommunicable diseases driving rising healthcare costs globally, prevention is becoming an ever more important pillar of healthcare.
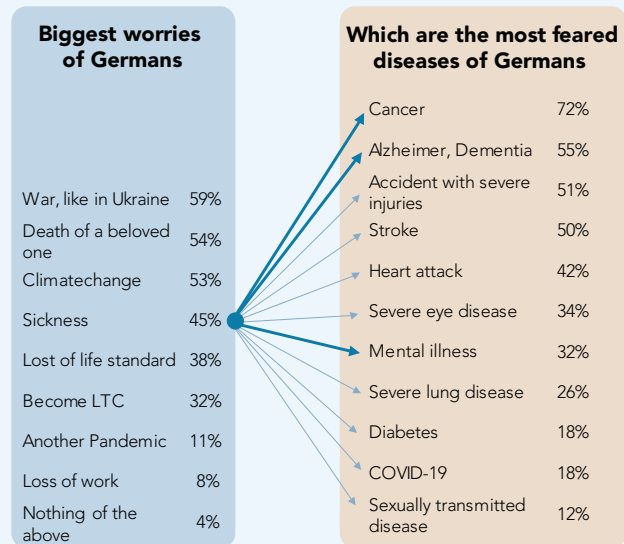
There are several distinctive forms of prevention. Primary prevention is aimed at healthy people and focuses on maintaining health. Secondary prevention refers to the early detection of diseases to prevent their progression. Tertiary prevention focuses on individuals who are already ill and offers support in improving health and preventing secondary diseases (e.g., through rehabilitation measures). As a rule, preventive medicine reduces expenditures in the healthcare system since the costs of prevention are lower than later treatment costs.

Health is a valuable asset. According to a recent study by Gothaer Lebensversicherung AG, almost half of the population currently fears contracting an illness. In addition, a study by DAK (former "Deutsche Angestellten Krankenkasse," a leading German health insurance provider) shows that people are particularly afraid of cancer and dementia (Figure 1). This explains the great demand for prevention and people's willingness to take preventive measures.

In principle, everyone desires a long, healthy life. By offering meaningful preventive measures, life insurers can also generate added value for insured persons. More and more life insurers are claiming to provide additional services for their customers rather than the sole promise of benefits paid upon death. This makes life insurance products more attractive, leading to strengthened customer loyalty.

This trend of providing additional health benefits to the insured is increasingly reflected in insurance companies' "vision" and "purpose" and has become a part of the sustainability strategy in the design of their biometric products. Similar to health insurance, prevention can also save costs for the life insurer if the benefits saved, e.g., for

Figure 1: Based on the Gothaer study and the Forsa survey November 2022.

Biggest worries of Germans

War, like in Ukraine	59%
Death of a beloved one	54%
Climatechange	53%
Sickness	45%
Lost of life standard	38%
Become LTC	32%
Another Pandemic	11%
Loss of work	8%
Nothing of the above	4%

Which are the most feared diseases of Germans

Cancer	72%
Alzheimer, Dementia	55%
Accident with severe injuries	51%
Stroke	50%
Heart attack	42%
Severe eye disease	34%
Mental illness	32%
Severe lung disease	26%
Diabetes	18%
COVID-19	18%
Sexually transmitted disease	12%

current pension payments due to occupational disability, are higher than the expenses for prevention.

Following the three forms of prevention – primary, secondary and tertiary as described – there is a whole range of other conceivable prevention options that life insurers could implement along the customer journey. In order to take successful prevention measures, life insurers need to define the product, the target group, and the exact time of prevention. This affects multiple business areas, including product development, sales, risk assessment, portfolio, and benefit assessment.
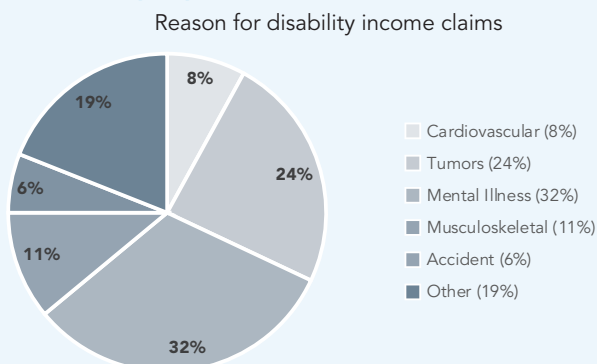
Based on the most frequently reported causes of claims, the areas of mental illness (the number one benefit trigger for occupational disability), cardiovascular diseases, cancer (the most frequent cause of death), and dementia (the main cause of the need for long-term care in old age) are of particular interest for life insurance. Possible starting points and specific challenges for each of these areas are outlined below. This article also highlights how SCOR, as a reinsurer, has launched various projects to provide clients with expert advice on prevention.

Prevention Services in Mental Health

The share of mental illnesses, such as depression, in the causes of new claims for occupational disability has risen sharply in recent years and now reaches a value of over 30% depending on the occupational, gender, and age distribution in portfolios. This means that mental illnesses are now the leading cause of occupational disability (UI).

Figure 2: BU causes based on SCOR data pool 2023, example portfolio.

Reason for disability income claims

- Cardiovascular (8%)
- Tumors (24%)
- Mental Illness (32%)
- Musculoskeletal (11%)
- Accident (6%)
- Other (19%)

Although early intervention can prevent symptoms from worsening and leading to significant limitations in mental health, there have been few approaches to the topic of prevention in occupational disability insurance.

SCOR, together with Gothaer Lebensversicherung AG and in cooperation with the start-up company Feel Therapeutics Inc (formerly Sentio Solutions Inc), conducted a portfolio campaign in selected occupational disability portfolios. Interested policyholders with minor psychological complaints were offered online coaching that combines scientifically recognized cognitive behavioral therapy with new digital technology.

With a so-called emotion-tracking bracelet, users' stress reactions were identified through their physical signals, such as an increase in heart rate as well as changes in skin conductivity, skin moisture, and skin temperature. These signals were transmitted to an app and evaluated in real-time. In addition, the participants had the

opportunity to explain their feelings associated with stress reactions in more detail. In individual online coaching sessions, the users learned to recognize their reactions to stress and were given relaxation exercises and short training sessions to deal with them better. During the program period of 16 weeks, the evaluation showed that the anxiety and depression scores had improved significantly. The result suggests, therefore, a positive influence on the occurrence of claims in occupational disability insurance to improve profitability.

This approach is particularly interesting for employer group insurance, as it enables a company in cooperation with the insurer to not only offer its employees early support in the case of long-term incapacity to work because of mental illness but also provides the employees with psychological support as a preventive measure, which could also reduce absenteeism in the workforce.

Psychological support for insured persons during the benefit period is also promising. The focus here is not only on psychological disorders as the primary cause but also on accompanying psychological problems as well as adjustment disorders in connection with serious physical illnesses (e.g., psycho-oncological treatment for cancer) or serious accidents.

Experience in the benefit assessment of occupational disability cases shows that psychological support is useful not only during but also after the insured has overcome a serious illness. A cancer diagnosis, for example, can throw sufferers off track and expose them to considerable psychological discomfort. Psycho-oncology provides professional support to help people with cancer regain their ability to work and perform. In this way, the duration of benefits can be shortened, and new benefits cases can be prevented. It is worth noting that many cancer patients are not yet accompanied by psycho-oncologists when they receive benefits.

In the meantime, various providers offer online coaching via smartphone – even without an emotion-tracking bracelet. The benefit is obvious: with the "coach in your pocket," psychological counseling can be flexibly adapted to your lifestyle. In addition, thanks to individual use, any stigmatization can be counteracted and long waiting times for therapy (currently usually several months, depending on the region) can be avoided or bridged.

Preventive Measures for Cancer

Managing cancer is a key component of SCOR's global health & wellbeing strategy, as it affects all life insurance products, employment insurance, and critical illness insurance. Figure 2 above shows that malignant neoplasms (tumors) are responsible for more than 20% of occupational disability claims. The share of deaths in the total German population in 2021 was about 22%, according to the Federal Statistical Office.

In Germany, SCOR has been working on the prevention of skin cancer and offers nicotine cessation. However, the potential of early detection of cancer by MCEDT (multi-cancer early detection tests) or liquid biopsy is currently the subject of controversial discussion due to an offer by a German health insurance company. The detection of circulating tumor cells or tumor DNA in the blood is a groundbreaking development in oncology and is already being used successfully in individualized cancer therapy. Some studies are currently investigating the possibility of using it as a tumor screening method for the early detection of tumors, although it will certainly take a few years before reliable findings can be obtained on this.

For the prevention of skin cancer, SCOR has carried out a first pilot project with a start-up company called medaia. Due to the increase in UV radiation in the wake of climate change, more and more people are contracting skin cancer. Malignant melanoma is a very aggressive form of skin cancer, but 99% can be cured if detected at an early stage. Early detection of malignant melanoma thus prevents the development of life-threatening skin cancer and represents a typical use case of pattern recognition by artificial intelligence.

Moles or skin patches are photographed with a mobile phone camera and assessed with the help of artificial intelligence. The feedback takes the form of a traffic light system and classifies the birthmark as low, medium, or high risk. Here, the birthmark is examined and evaluated according to the ABCDE rules (Asymmetry, Border, Color, Diameter, Evolution). However, the application is not intended to replace a visit to the doctor but to sensitize the user to the issue of skin cancer and act as a reminder and support regular dermatological check-ups.

The pilot project was indeed able to increase awareness of the risk of skin cancer among 100% of the users who had not yet been seen by a dermatologist. Moreover, some participants were motivated to visit a dermatologist for the first time. Such an application offers life insurers the possibility, e.g. through stock campaigns, to support the insured in detecting cancers at an early stage and thus prevent severe courses.

Smoking also presents an opportunity for life insurers to improve preventative measures. With smokers accounting for approximately 26% of the population over age 15 in Germany, and with the considerable influence of smoking on health and mortality, the topic of nicotine cessation is a natural one. For example, the risk of contracting tracheal, bronchial, or lung cancer is about 28 times higher in male smokers aged 65 to 74 compared to non-smokers of the same age.

Smoking status is an important parameter for pricing term life insurance. Insureds who smoke, for example, pay about two to three times as much as non-smokers at the age of 35 for a term of 20 years, depending on the provider. By separating
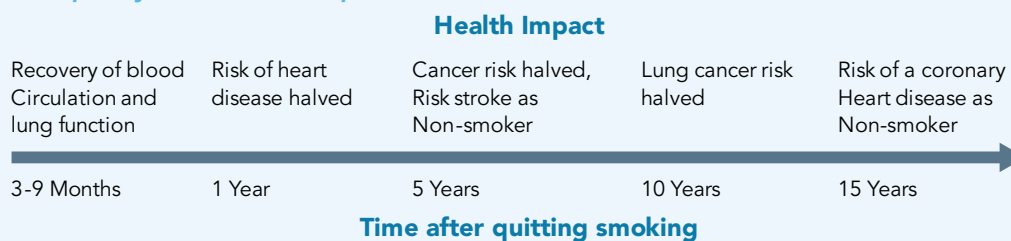
smoker and non-smoker rates, life insurers are able to target smokers for nicotine cessation. This would significantly improve mortality in the smoker population, provided that ex-smokers remain in the smoker population. This is because the risk of coronary heart disease normalizes after only 15 years, as seen in Figure 3.

However, healthy insured persons who no longer smoke will try to leave the smoking tariff and switch to a non-smoking tariff.

This has direct implications for both the company's portfolio and new business. One of the reinsurer's tasks here is to support the life insurer in the modelling and evaluation of such measures in order to avoid distortions in the pricing structure and the portfolios.

Figure 3: How quickly does health improve after nicotine cessation?

Health Impact

Recovery of blood Circulation and lung function	Risk of heart disease halved	Cancer risk halved, Risk stroke as Non-smoker	Lung cancer risk halved	Risk of a coronary Heart disease as Non-smoker
3-9 Months	1 Year	5 Years	10 Years	15 Years

Time after quitting smoking

Prevention of Cardiovascular Diseases

Risk factors for cardiovascular diseases that cannot be influenced include age, gender, and hereditary predisposition. However, most risk factors can be minimized or even eliminated through health-conscious behavior. These are cardiometabolic diseases, such as high blood pressure, diabetes mellitus, dyslipidemia, and obesity, as well as health-damaging behaviors, such as smoking, lack of exercise, excessive alcohol consumption, and an unhealthy diet. These factors can be influenced by lifestyle changes and drug treatments and are, therefore, amenable to great prevention potential.

SCOR has already conducted pilot projects in various markets to promote health-conscious behavior in life insurance. Data analyses by SCOR and the software developer Vivametrica Ltd. show that physical activity averaging 5000 steps per day significantly reduces mortality risk. Accordingly, insured persons were invited

to participate in special health events based on step counting time-limited health actions. SCOR has developed its own mathematical model, the Biological Age Model or "BAM," to calculate an individual's biological age, which can then be used to calculate premiums. In the German market, insured persons were able to earn a health bonus from various major life insurance companies via Check24 as part of the "Fit in den Frühling 2022 (Fit in Spring 2022)" campaign.

In addition, SCOR has developed the first occupational disability insurance for diabetics in Germany with myLife Lebensversicherung AG. The target group is primarily young people suffering from type 1 diabetes with good disease management. The risk assessment was specially tailored to this risk group, and for the first time, an additional "prevention pension" in the event of benefits rewards regular diabetes check-ups during the term.

Prevention of Dementia

Physical exercise, diet, and avoidance of cardiovascular risk factors, such as high blood pressure, overweight, smoking, and dyslipidemia, play a major role in more than the prevention of cardiovascular diseases. Interestingly, anything that prevents cardiovascular disease also reduces the risk of developing dementia.

SCOR's long-term care claims statistics, which cover millions of policyholders over a period of more than 15 years, show that dementia is responsible for 25% to 30% of claims. This makes dementia the most common cause of need for long-term care. Most dementia cases are Alzheimer's disease.

With a healthy lifestyle, not only is life expectancy itself increased, but also people can gain dementia-free years.

Figure 4: Effect of a healthy lifestyle on dementia-free years from age 65 onwards.

Life expectancy and dementia free years at age 65
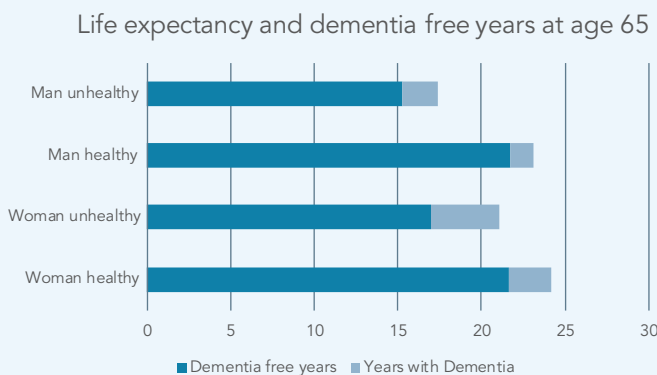
In the past, Alzheimer's disease could only be diagnosed with certainty after the patient's death. Today, it is possible to detect the disease at an early stage and, with the help of so-called biomarkers, at a stage before cognitive decline begins.

However, drug therapy can currently only slow down the course of the disease. There is currently no complete cure for Alzheimer's disease. Intensive research is currently being conducted on

drugs and vaccines, but even if there is a medical breakthrough in the future, it would be very expensive and take a long time before the new drugs could help the majority of those affected.

Numerous studies, such as a study by the University of California Berkeley, are also investigating a possible link between sleep disorders and dementia. Long-term sleep disorders are currently assumed to increase the risk of developing Alzheimer's disease. Since the protein beta-amyloid is increasingly flushed out of the brain during sleep, chronic lack of sleep could impair this process and promote protein clumping.

Overall, prevention is essential to reduce the risk of dementia. Components that contribute to preventing neuropathological damage and to increasing or maintaining cognitive reserve can be distinguished, as shown in Figure 5 (on the next page).

A healthy lifestyle also helps to reduce the risk of Alzheimer's disease. However, there are other components that counteract cognitive decline. Mental fitness and social contact are not mentioned in the prevention of cardiovascular diseases, but they are critical here.

Untreated hearing loss is also associated with an increased risk of developing dementia. This is because people with poor hearing often increasingly withdraw from their social environment. Listening to the radio can have a preventive effect on single people, because the ear is trained by different voices, pitches, and speech speeds. In addition, music has a positive effect on mental health.

The risk of falling is another risk that is greatly increased with age and has implications for dementia. It is estimated that about 30% of people over age 65 fall at least once a year. After a fall-related injury, mobility is often limited due to a resulting restriction of movement and possibly also the fear of further falls. Therefore,
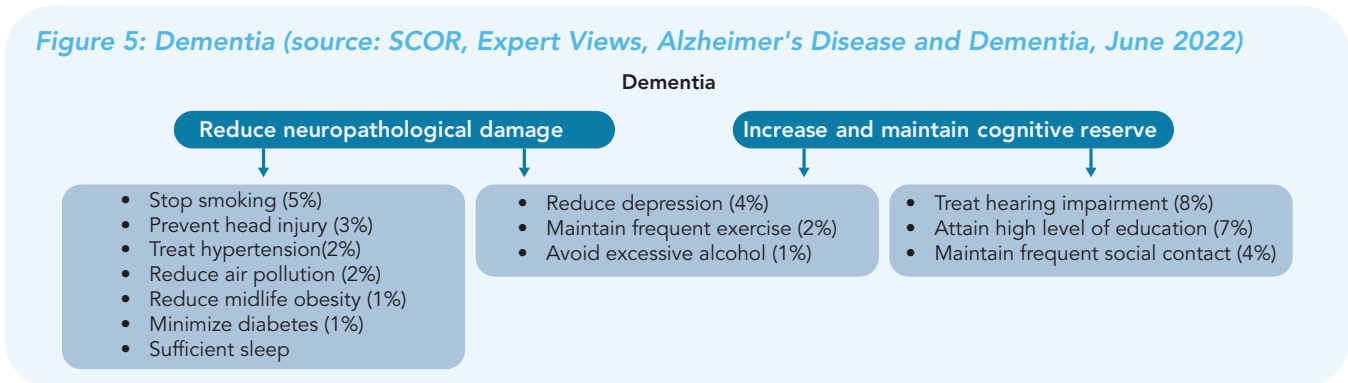
fall prevention is important. There are programs to strengthen balance, among other things. But structural changes, e.g., installing fall-prevention bars in the shower, can also help reduce fall risk.

Various digital platforms and apps already on the market offer numerous activities (word games, riddles, memory puzzles, problem solving, and so on) to check and strengthen cognitive abilities. Such activities slow cognitive aging and can help prevent dementia.

However, we need to stress that the risk of disease depends on a variety of risk factors with varying degrees of influence. An examination and interview of the patient as well as a complete assessment of the patient's life situation should, therefore, precede the recommendation of concrete preventive measures.

Figure 5: Dementia (source: SCOR, Expert Views, Alzheimer's Disease and Dementia, June 2022)

Dementia

Reduce neuropathological damage

- Stop smoking (5%)
- Prevent head injury (3%)
- Treat hypertension(2%)
- Reduce air pollution (2%)
- Reduce midlife obesity (1%)
- Minimize diabetes (1%)
- Sufficient sleep

- Reduce depression (4%)
- Maintain frequent exercise (2%)
- Avoid excessive alcohol (1%)

Increase and maintain cognitive reserve

- Treat hearing impairment (8%)
- Attain high level of education (7%)
- Maintain frequent social contact (4%)

Conclusion

Life insurers increasingly see themselves as more than just risk carriers who provide benefits in the event of a claim. Gone are the days when insurers did not appear during the life insurance contract term. Instead, some companies are deliberately becoming health partners of the insured. The first preventive measures can be found in the product offerings, which can then make a difference in competition as a unique selling proposition.

Concrete promises of benefits by health partners are hardly possible due to the long-term nature of life insurance. So, we must limit ourselves here to a basic description of the prevention offer. In the case of possible incentivization of health-conscious behavior through premium reductions, health bonuses, or benefits in kind, the life insurer must generally remain within the permissible limits of the ban on special remuneration pursuant to § 48b of the German Insurance Supervision Act.

With prevention programs, life insurers can gain important data and insights into consumer behavior and the motivation of policyholders. SCOR expects a further increase in prevention offerings by life insurers and is working with them to offer health & wellbeing worldwide, focusing on the prevention of cancer and mental disorders as part of the new strategic plan "Forward 2026."

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