

If we are truly happy inside, then age brings with it a maturity, a depth, and a power that only magnifies our radiance.

— David Deida



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aging news

NEWSLETTER OF THE INSTITUTE ON AGING (IOA) | UNIVERSITY OF WISCONSIN-MADISON

Negative Emotions Promote Poor Health in the US, but not in Japan

Previous research has linked negative emotions to poor health. Stress and depression, for example, have been shown to increase inflammation (causing various body tissues to become swollen), which is a component in a number of aging-related illnesses, such as heart disease and cancer. Most studies of negative emotions and health have been conducted by Western scientists. Because different cultures have different traditions of responding to emotions, this MIDUS/MIDJA study explored whether feeling bad would also be linked to poor health in Eastern cultures.

Western cultural traditions value positive emotions and encourage the pursuit of happiness. Negative emotions are avoided because they are undesirable. Ideally, Westerners achieve a lasting happiness that can overcome any feelings of unhappiness we may encounter. In contrast, Eastern cultural traditions promote the view that reality is comprised of opposites. Happiness and unhappiness are complementary and can coexist within the same person. Experiencing negative emotions at some point in life is considered inevitable. Negative emotions can even have some desirable aspects,

such as being a source of motivation for self-improvement or an opportunity to receive support from others. Due to these different cultural traditions, researchers examined whether negative emotions would lead to worse health outcomes in the US than in Japan.

Investigators examined data from 1044 middle-aged and older participants of MIDUS, a national study in the US, and compared it to data from 382 participants from MIDJA, its sister study in Japan. Negative emotions were measured by asking how often during the last 30 days participants felt hopeless, worthless, nervous, restless or fidgety, that everything was an effort, or so sad that nothing could cheer them up. Inflammation was measured through blood levels of IL-6 (interleukin-6), a protein that can promote chronic inflammation and lead to ill health.

Results showed that the interaction between culture and negative emotions was statistically significant. Negative emotions did not predict levels of IL-6 among the Japanese, but did predict higher levels of IL-6 and more inflammation among



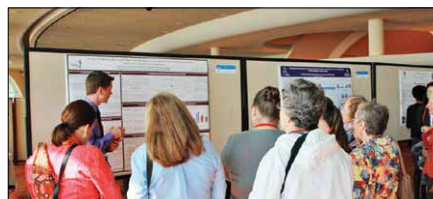
When Westerners are taught to deny their negative emotions, it may contribute to poor health.

Our 25th Successful IOA Colloquium on Aging



If you missed our event,
you can still access
these resources online at:

[aging.wisc.edu/
outreach/colloquium.php](http://aging.wisc.edu/outreach/colloquium.php)



VIEW VIDEOS of PRESENTATIONS:

- **Assessing Muscle Function and Balance Problems at Home, in the Clinic, and in Research** Bjoern Buehring, MD
- **The Earliest Signs of Alzheimer's Disease** Sterling Johnson, PhD
- **Physical Activity to Prevent Disability & Frailty in Older Adults** Marco Pahor, MD

VIEW AGING RESEARCH POSTERS:

See the "Highlighted Posters" section of our home page to view pdfs of some of the posters presented at the event.

FIND LOCAL AGING ORGANIZATIONS:

View contact information & descriptions from more than 50 local organizations offering resources for positive aging.

2013 New Investigator Award Winners

These awards are given to UW-Madison students or advanced trainees to recognize outstanding achievement by new investigators in aging research. Posters summarizing the winner's research can be viewed on our website. This year's winners, shown from left to right, are:



Jason R. Franz Poster: *Preserving Walking Ability with Age: From Biomechanical Insight to Evidence-Based Intervention*

Porsha Howell Poster: *mTOR in Aging & Age-Related Diseases*

Eun Ha Namkung Poster: *The Nature of the Relationship Between the Caregiver & Care Recipient & its Effect on the Caregiver's Well-being*



Thank You!

We send our thanks to the following, whose donations helped us continue to offer this event for free to its 550 attendees:

Laurine Carstens	Everett & Maureen Rice
MaryLou Elson	Dorothy Schroeder
Elizabeth Gill	Patricia Seybold
Peggy Hendrickson	Kathryn Smith
John Koch	Judy Stevenson
Donna Miller	Rochelle Stillman
John Miller	Betty Telvick
Jane Pizer	Ruth Tsotsis
June Quesnell	Lucy Wall
Alyssa Rader	Meg Wise



Donations can be made
via our website any time
during the year.

Save the Date!



The 26th annual
Colloquium on Aging
will be held in Madison, WI on

Tues., Sept. 30, 2014

Registration fills up fast and should open on the first Monday in August. To receive event news, join our mailing list via our website or contact:



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Continued from front page...

Americans. This association remained even after the effects of health status, healthy lifestyles, personality, age, and years of education were taken into account.

It may be that negative emotions have less effect on health in Japan because they are accepted as a normal and inevitable part of life. Trying to deny or suppress negative emotions, as Westerners are encouraged to do, may contribute to poor mental health. These ideas are supported by recent research on mindfulness training, which teaches practitioners how to observe and accept negative emotions rather than deny them. Mindfulness training is rooted in Eastern meditation traditions and has been shown to lead to better mental and physical well-being.

Although it is likely that most people prefer to feel positive emotions and avoid negative ones, regardless of cultural upbringing, this research shows that cultural traditions may come with different messages about how to manage negative emotions, which may, in turn, affect our health. Such findings convey the importance of taking cultural ideas into account when studying negative emotions and their links to health.

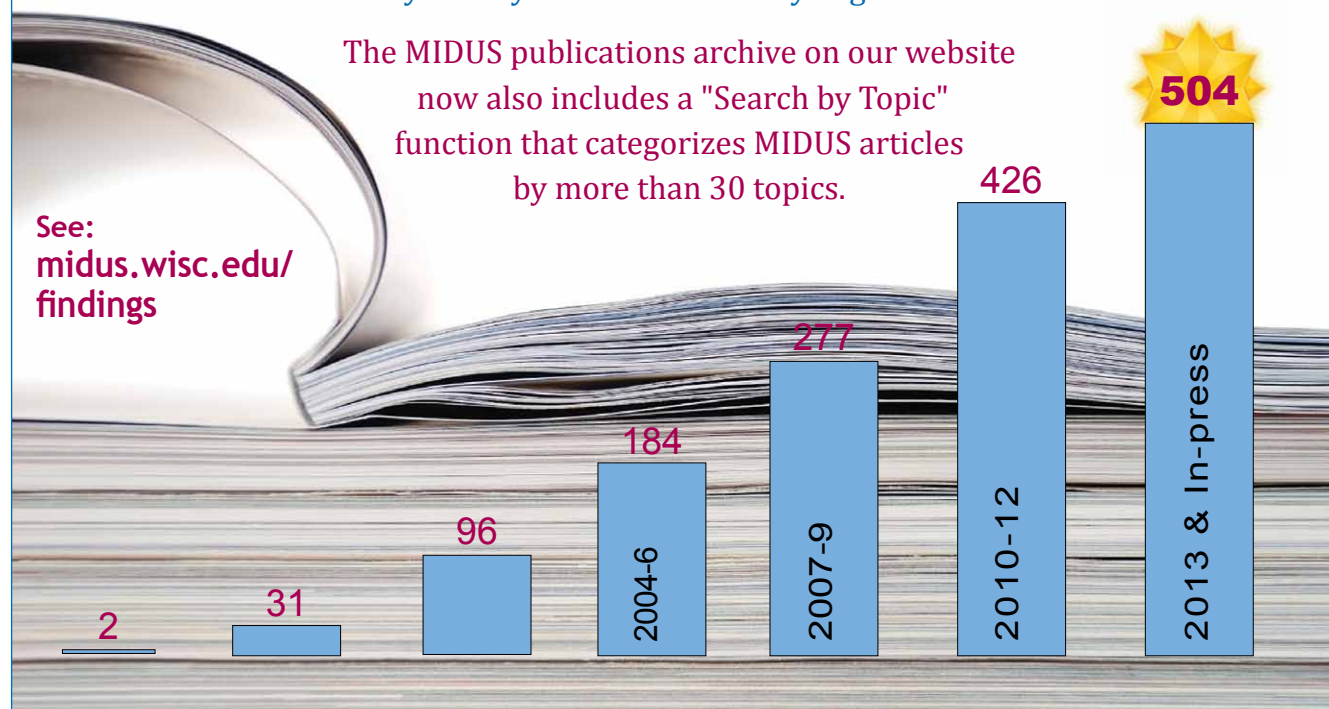
Source: Miyamoto, Y., Boylan, J. M., Coe, C. L., Curhan, K. B., Levine, C. S., Markus, H. R.,... Ryff, C. D. (2013). Negative emotions predict elevated interleukin-6 in the United States but not in Japan. *Brain, Behavior, and Immunity*. Advance online publication. doi:10.1016/j.bbi.2013.07.173

MIDUS generates over 500 publications that can now be accessed by topic!

Researchers have now used data from our Midlife in the United States (MIDUS) study to produce over 500 scientific publications that add to our understanding of positive aging. The chart below shows the cumulative total of publications every three years since the study began in 1995.

The MIDUS publications archive on our website now also includes a "Search by Topic" function that categorizes MIDUS articles by more than 30 topics.

See:
[midus.wisc.edu/
findings](http://midus.wisc.edu/findings)



affiliate news

For more information on the work of IOA Affiliated Faculty and Researchers at UW-Madison, see: www.aging.wisc.edu/research/affilindex.php



New and tastier thickened beverages should help the 18 million Americans with dysphagia swallow more easily.

AGING NEWS FALL/WINTER 2013

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AGING NEWS

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Better Beverages for Those with Swallowing Disorders

IOA Affiliate **JoAnne Robbins** (Prof., UW Dept. of Medicine; Assoc. Dir. for Research, Veterans Hospital Geriatric Research Education & Clinical Center) was featured in a recent UW News story about developing better beverages for people who have swallowing problems known as dysphagia. Dysphagia can cause food or liquid to be misdirected into the airway, leading to complications such as pneumonia. Commercially available thickened beverages can help prevent this leakage into the lungs, but they are not known for their pleasant taste or texture. Prof. Robbins, an expert on dysphagia treatment, joined with Prof. Rich Hartel (UW Food Science), an expert on chocolate, to develop better options.

In addition to having an unpleasant taste and "mouth feel," the commercially available beverages are not scientifically developed, so do not have the optimal viscosity, or thickness that is best for patients. Profs. Robbins and Hartel analyzed 15 thickeners to develop beverages that are both safer and tastier for patients to drink. Although they tried to create a chocolate drink, they realized that citrus flavors both quench thirst better and encourage a better swallow. Their new beverage technology has been tested in patients and is in the process of being patented so that it can be made available to the public. For the complete article, see: www.news.wisc.edu/22059

Cholesterol Genes May Influence Alzheimer's Disease

The genetic causes of early-onset Alzheimer's disease (AD) are well established, but the genetic causes of late-onset AD (beginning after age 65) are still not well-known. The most significant genetic risk factor is considered to be the $\epsilon 4$ version of the *APOE* (apolipoprotein E) gene, and recent studies have identified nine other genes associated with late-onset AD. These additional risk genes suggest three new pathways leading to AD: cholesterol metabolism, immune system function, and synaptic dysfunction & cell membrane processes. AD risk is usually considered to be higher when we have more of these risk genes present. However, our total number of risk genes has not been shown to accurately predict AD. IOA Affiliates **Corinne Engelman** (Asst. Prof., Population Health Sciences) and **Mark Sager** (Prof., Dept. of Medicine-Geriatrics, both UW-Madison), along with their colleagues, recently studied whether interactions *between* these genes would be more predictive.



They examined genetic data from 1153 participants of the Wisconsin Registry for Alzheimer's Prevention (WRAP), many of whom had a parent with AD. Different types of memory tests were given to WRAP participants, who were retested 4 and 6 years later. Researchers examined whether memory scores were affected by interactions between the *APOE* gene and 14 different variations (single nucleotide polymorphisms) of the nine recently identified AD risk genes.

Results showed that interactions between the *APOE* gene and two variations in the *ABCA7* gene that are in the cholesterol metabolism pathway leading to AD (rs3764650 & rs3752246), were significantly associated

welcome new affiliates

Dawn Belt Davis • Asst. Prof., Dept. of Medicine- Endocrinology

Focus: Pancreatic beta cell mass regulation & diabetes risk in aging.

Ozioma Okonkwo • Asst. Prof., Dept. of Medicine- Geriatrics

Focus: Brain and biomarker predictors of Alzheimer's disease in cognitively-normal individuals.

with scores on working memory, immediate memory, and verbal learning & memory. In the absence of the *ABCA7* variant, each additional *APOE* $\epsilon 4$ variant was associated with lower memory scores. In the presence of one or two *ABCA7* variants, each additional *APOE* $\epsilon 4$ variant was associated with better memory scores. The latter could explain why those with the *APOE* $\epsilon 4$ gene variant, who are considered most at risk for AD, might not develop it at all, or don't develop it until they are older. These results show the importance of considering interactions among AD risk genes, rather than just studying one gene at a time. **Source:** *Engelman, C. D., Kosciak, R. L., Jonaitis, E. M., Okonkwo, O. C., Hermann, B. P., La Rue, A., & Sager, M. A. (2013). Interaction between two cholesterol metabolism genes influences memory: Findings from the Wisconsin registry for Alzheimer's prevention. Journal of Alzheimer's Disease, 36(4), 749-757. doi:10.3233/JAD-130482*

New "Dysmobility Syndrome" to Predict Falls & Fractures

IOA Affiliates **Neil Binkley**, **Bjoern Buehring**, and **Diane Krueger** from the UW Osteoporosis Clinical Research Program, recently published an opinion paper about predicting fall and fracture risk in older adults. Current approaches do not allow clinicians to identify the older individuals most likely to fall and be injured or sustain fractures. Osteoporosis, the age-related loss of bone mass, is a well-known component of fracture risk, but is an insufficient predictor when used alone. Sarcopenia, the age-related loss of muscle mass, also plays a role, but is not often diagnosed due to a lack of consensus as to its definition (see SP/SU13 *Aging News*, p. 2). Current practices also overlook the role of obesity and how excess fat, relative to muscle mass, can place additional demands on bone and muscle systems already compromised with osteoporosis or sarcopenia.

This paper suggested use of new terminology, "dysmobility syndrome," to predict who is at risk for fractures in older age. The syndrome would define factors that contribute to impaired mobility, because difficulty walking can lead to falls, which can cause broken bones. In an exploratory study of 97 adults aged 70 years or older, the authors noted that 36% of those diagnosed with dys-

mobility had experienced a fall and 30% had sustained broken bones within the last year, which is about the number of falls and fractures that actually occur among older adults, demonstrating that the dysmobility concept may have good predictive power.

The paper proposed dysmobility syndrome be diagnosed when three or more of the following risk factors were present: low bone mass, low muscle mass, high body fat mass, history of falls within the past year, slow walking speed, or low grip strength. Using this risk factor-based definition is comparable to the widely accepted definition of metabolic syndrome, which includes multiple factors, such as obesity and high blood pressure, that contribute to poor heart health. The authors acknowledge that more factors than those included in the above diagnosis should be considered as part of the final dysmobility syndrome definition, and are hopeful that the syndrome will be evaluated in larger studies to identify the best combination of risk factors. **Source:** *Binkley, N., Krueger, D., & Buehring, B. (2013). What's in a name revisited: Should osteoporosis and sarcopenia be considered components of "dysmobility syndrome?" Osteoporosis International. Advance online publication. doi:10.1007/s00198-013-2427-1*



**Don't let aging
get you down.
It's too hard to
get back up.**

— John Wagner



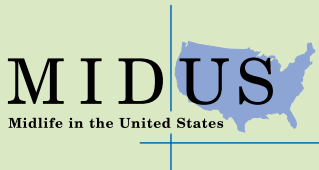
IOA affiliates receive GSA honors

Affiliate **Tracy Schroepfer** (Assoc. Prof., School of Social Work, UW-Madison) has been elected a **Fellow of the Gerontological Society of America (GSA)**, the nation's oldest and largest interdisciplinary organization devoted to research, education and practice in the field of aging. Fellowship is the highest class of GSA membership and is achieved through peer nomination for outstanding and continuing work in gerontology. Prof. Schroepfer's research focuses on ways to meet the psychosocial and spiritual needs of terminally ill elders, as well as ways to reduce cancer health disparities in medically underserved communities in Wisconsin.

IOA Affiliate **Rozalyn Anderson** (Asst. Prof., Dept. of Medicine-Geriatrics, UW-Madison) has won GSA's prestigious **Nathan Shock New Investigator Award**, in recognition for her outstanding contributions to new knowledge about aging via basic biological research. Her work focuses on the biological mechanisms by which reduced caloric intake can delay aging and prevent age-related diseases. Both awards will be presented at GSA's annual meeting, which is attended by 4000 professionals in the field of aging.

new findings from MIDUS

Funded by the National Institute on Aging
(P01 AG020166)



MIDUS studies aging as a long-term journey involving multiple factors (psychological, social, biological). It began in 1995 with over 7000 participants, aged 25-74, and continues with follow-up studies at 10 year intervals. Over 500 publications have utilized MIDUS data. They are archived at: midus.wisc.edu/findings



Obesity is a mental state, a disease brought on by boredom and disappointment.

— Cyril Connolly



Stress, Over-Eating & Health

Modern-day environments are believed to promote obesity through an abundant availability of unhealthy foods and a decline in physical activity, leaving more than 1/3 of American adults obese. Clearly, eating in excess of the body's needs is the leading cause of weight gain. Weight loss programs, therefore, usually focus on dieting, but often overlook the underlying psychological causes of overeating. The role of stress in promoting emotional overeating has received some attention because of the overlap in biological systems that react to stress and that regulate food intake. The body's normal response to stress is for the HPA (hypothalamic-pituitary-adrenal) axis to increase available energy in order to prepare for a "flight or fight" response. This is done, in part, by releasing glucose (sugar) into the blood stream, which provides fuel for the body's cells and normally makes us less likely to eat. In contrast, emotional eaters react to stress by overeating comfort foods that are usually high in sugar and/or fat. This is thought to alleviate stress by reducing HPA activity and triggering brain circuits that reward us with pleasurable feelings, thus reinforcing our behavior so that we are more likely to overeat the next time we are stressed.

Previous research has not clarified whether emotional eating leads to abdominal obesity, or affects the body's regulation of glucose. The latter is a component of diabetes, a disease in which cells become resistant to insulin, the hormone that regulates blood glucose levels. This MIDUS study of 1138 adults was the first to use a nation-wide sample to examine how stress eating affects obesity and diabetes.

Glucose regulation was measured through levels of fasting glucose, fasting insulin, and HbA1c (glycated hemoglobin, a measure of glucose concentration), as well as presence of diabetes or prediabetes. Stress eating was measured by asking how participants usually respond to stress, two options of which were, "I eat more of my favorite foods to make myself feel better" and "I eat more than I usually do."

Results showed that stress eating was associated with significantly higher levels of glucose, insulin, insulin resistance, and HbA1c in non-diabetics, as well as higher odds of having prediabetes or diabetes. Importantly, this association was shown to be dependent upon higher waist circumferences. Those who overate in response to stress were more likely to have a bigger waist, which in turn was associated with poor glucose regulation and with being diabetic.

Traditional weight loss programs are often successful in the short-term, but the lost weight is commonly regained in the long run. This may be because weight loss programs often do not target the root causes of overeating, one of which may be eating in response to stress. Therefore, it may be important to help emotional eaters identify alternative strategies to cope with stress. Future research could also use the MIDUS database to determine whether different types of stress, such as job stress or caregiver stress, are more likely to promote overeating, or whether personality factors, such as neuroticism, play a role. This would allow researchers to identify those most at risk for emotional overeating and target interventions appropriately, so that the negative health consequences of overeating could be prevented.

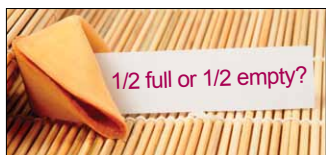
Source: Tsenkova, V., Boylan, J. M., & Ryff, C. (2013). *Stress eating and health: Findings from MIDUS, a national Study of U.S. Adults. Appetite*, 69, 151-155. doi:10.1016/j.appet.2013.05.020



Optimism May Encourage Better Health

Optimistic people are those who maintain positive expectations for the future. Prior research has shown that optimistic people have fewer illnesses, but few studies have examined whether optimism is also linked to signs of good health, such as having a healthy lipid (fat) profile or higher levels of antioxidants in the body. Two recent MIDUS studies explored whether optimism was linked to these two indicators of positive health.

Optimism was assessed through six life orientation questions such as, “I expect more good things to happen to me than bad,” and “In uncertain times I expect the best,” vs. “If something can go wrong for me it will.” The



first MIDUS study examined whether people who reported more optimism had better

lipid profiles. Lipids include cholesterol and fat, high levels of which can compromise heart health. Lipid levels were assessed in 990 adults with fasting blood samples that measured total cholesterol, HDL cholesterol (the “good cholesterol” that removes fat from artery walls), LDL cholesterol (the “bad cholesterol” that can increase fat on artery walls), and triglycerides (a blood fat linked to heart disease).

Potential behaviors that might influence the association between optimism and lipids were also examined, including smoking, drinking daily, exercising often, and having a healthy diet. Diets were considered healthier if they had more of the following: at least three servings of fruits & vegetables a day, at least three servings of whole grains a day, one or more servings of fish a week, one or more servings of lean meat per week, not more than two servings of high-fat meat per week, eating fast food less than once per week, and avoiding sugared beverages.

Results showed that being optimistic was not associated with total cholesterol levels or with “bad” LDL cholesterol, but was associated with having higher levels of “good” HDL cholesterol, as well as lower triglycerides. Further analysis showed that this associa-

tion was explained in part because optimistic people were more likely to have a healthy diet, drank less, didn’t smoke, and had a lower BMI (body mass index based on height and weight measurements).

The second study examined whether optimism was related to antioxidants, such as carotenoids (e.g., beta-carotene) and vitamin E. Antioxidants are well known for their ability to reduce the body’s level of free radicals that cause cell damage and contribute to health problems such as heart disease. Nine antioxidants (7 carotenoids & 2 types of vitamin E) were measured in blood samples from 982 adults. Participants also reported their daily fruit & vegetable consumption, amount of exercise, smoking habits, and whether they took multi-vitamins.

Results showed that optimism was not significantly associated with vitamin E levels. However, it was associated with higher concentrations of carotenoid antioxidants. Health behaviors also explained part of this association. Those who consumed the most fruits & vegetables, along with non-smokers, had higher concentrations of carotenoids.

These studies show that optimism is associated with better physical health and that the association can be explained in part by healthy behaviors. Although most people want to lead a healthy lifestyle, doing so can be a challenge. Having an optimistic outlook may improve our motivation. If we lack optimism, and believe instead that things can’t get any better, we are not likely to stick with the healthy behaviors that could make life better. Being in good health may also make us feel more optimistic about the future, thus reinforcing the healthy behaviors that have fostered our good health. These results suggest that boosting optimism may be an appropriate intervention to help people improve their physical health.

Sources: Boehm, J. K., Williams, D. R., Rimm, E. B., Ryff, C., & Kubzansky, L. D. (2013). Relation between optimism and lipids in midlife. *American Journal of Cardiology*, 111(10), 1425-1431. doi:10.1016/j.amjcard.2013.01.292 and Boehm, J. K., Williams, D. R., Rimm, E. B., Ryff, C., & Kubzansky, L. D. (2013). Association between optimism and serum antioxidants in the Midlife in the United States Study. *Psychosomatic Medicine*, 75(1), 2-10. doi:10.1097/PSY.0b013e31827c08a9.



Leading a healthy lifestyle can be a challenge, but being optimistic may help motivate us toward the healthy behaviors that fulfill our vision of a positive future.



You don't stop laughing when you get old, you get old when you stop laughing.

— George Bernard Shaw



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Aging seems to be
the only available way
to live a long life.

— Kitty O'Neill Collins

The Price of Poor Sleep



Chronic insomnia is experienced by approximately 7% of the population, while an additional 22% report having symptoms of insomnia that make it hard to sleep. Previous research has shown that these symptoms are associated with physical and psychological illnesses, particularly those that involve discomfort or worry, such as chronic pain or depression. Less is known about how insomnia symptoms affect positive aspects of psychological well-being. A recent MIDUS study examined this question by looking at self-reports of well-being and insomnia from two time points 10 years apart (Time 1 & 2).

Insomnia was assessed in 4014 participants by asking how often in the last 30 days they had experienced trouble getting to sleep or staying asleep. Psychological well-being was examined in two ways. Subjective well-being focuses on the ability to enjoy life, and was studied through questions about positive affect (e.g., feeling cheerful or calm), negative affect (e.g., feeling afraid

or angry), and how satisfied participants felt with their lives. Eudaimonic well-being focuses on leading a meaningful life, and was studied through questions about having a sense of purpose, feeling



in control of your future, willingness to try new things, and other traits.



Results showed that having insomnia symptoms at Time 1 made having insomnia symptoms at Time 2 more likely, and that those who reported insomnia at both Times 1 & 2 showed significantly decreased psychological well-being, reporting both lower subjective and eudaimonic well-being.

This shows that recurring insomnia symptoms, even 10 years apart, may leave us vulnerable to many aspects of decreased psychological well-being. Recurring insomnia appeared to trigger bad moods, as well as make people feel less in control and less accepting of their current functioning in life. Good psychological well-being is important because it correlates with increased resilience, which promotes our ability to withstand hardship without long-term ill effects. These results point out that early intervention in combating insomnia symptoms may be particularly important to future well-being.

Source: Karlson, C. W., Gallagher, M. W., Olson, C. A., & Hamilton, N. A. (2013). Insomnia symptoms and well-being: Longitudinal follow-up. *Health Psychology*, 32(3), 311-319. doi:10.1037/a0028186

