Optimistic outlook leads to longer life, Nun Study hints

MANKATO, Minn. -- A spiraling road slopes gently up to Good Counsel Hill, where the convent of the School Sisters of Notre Dame perches peacefully. Within its thick red brick walls are bright paintings of nuns and children. Organ hymns waft from a circular chapel, and nuns attend Mass and murmur rosaries under a white vaulted dome.

But this crucible of faith is also the site of an extraordinary scientific experiment. For 15 years, elderly Catholic nuns here have had their genes analyzed and balance and strength measured. They have been tested on how many words they can remember minutes after reading them on flashcards, how many animals they can name in a minute whether they can count coins correctly.

The autobiographical essays they wrote for their order in their 20s, when they took their vows, have been scrutinized, their words plumbed for meaning. And as they have died, their brains have been removed and shipped in plastic tubs to a laboratory where they are analyzed and stored in jars.

The experiment, called the Nun Study, is considered by experts on aging to be one of the most innovative efforts to answer questions about who gets Alzheimer's disease and why. And now in a new report it is offering insight on a different subject -- whether a positive emotional outlook early in life can help people live longer.

Motherhouse of medicine
By studying 678 nuns -- at this convent and six others in the order, in Connecticut, Maryland, Texas, Wisconsin, Missouri and Illinois -- Dr. David A. Snowdon, an epidemiologist at the University of Kentucky, and colleagues have come up with tantalizing clues and provocative theories over the years.

Their research has shown that Colic acid may help stave off Alzheimer's disease; that small, barely perceptible strokes may trigger some dementia; and, in an especially striking finding, that early language ability may be linked to lower risk of Alzheimer's because nuns who packed more ideas into the sentences of their early autobiographies were less likely to get Alzheimer's disease six decades later.
The new report, being published tomorrow in the Journal of Personality and Social Psychology, says that nuns who expressed more positive emotions in their autobiographies lived significantly longer -- in some cases 10 years longer -- than those expressing fewer positive emotions.

"I think the Nun Study is very important because it uses information obtained about people before the period of illness," said Dr. Robert P. Friedland, professor of neurology at Case Western Reserve University and author of a study showing that people with Alzheimer's were, as young adults, less mentally and physically active outside their jobs than people without the disease. "So we know from the Nun Study and others that Alzheimer's disease takes several decades to develop, and the disease has many important effects on all aspects of a person's life."

All this has given Snowdon, author of a new book on the study called "Aging With Grace" (Bantam), a rare window through which to examine why some nuns thrive and others deteriorate so much that they lose speech, mobility and much of their memory. The differences show up even in nuns with virtually identical backgrounds even those who are biologically related.

At 93, Sister Nicolette Welter still reads avidly, recently finishing a biography of Bishop James Patrick Shannon. She knits, crochets, plays rousing card games and, until a recent fall, was walking several miles a day with no cane or walker.

But a younger sibling, Sister Mary Ursula, 92, shows clear Alzheimer's symptoms, Snowdon said. Several times a day, Sister Nicolette feeds and reads prayers to Sister Mary Ursula, who uses a wheelchair and can hardly lift her head or gnarled hands.

Another Welter sister, 87-year-old Sister Claverine, is still active and clearheaded. A fourth sibling, Sister Mary Stella, died in 1996 at 80.

"I wouldn't have any idea why this happened to Mary Ursula," said Sister Nicolette, "but I just feel like I'll keep my mental faculties"

**Positive thinking**

Some of Snowdon's research suggests she might be right. Sister Nicolette's autobiography, written when she was 20, was full of what Snowdon calls "idea density," many thoughts woven into a small number of words, a trail correlating closely with nuns who later escaped Alzheimer's.
One sentence in Sister Nicolette's essay, for example, reads, "After I finished the eighth grade in 1921 I desired to become an aspirant at Mankato but I myself did not have the courage to ask the permission of my parents so Sister Agreda did it in my stead and they readily gave their consent."

Compare that to the essay of another Mankato nun, who is in her late 90s and has performed steadily worse on the memory tests. The nun, who sat quietly by a window the other day, wrote in her essay, "After I left school, I worked in the post-office."

The Nun Study's latest published findings offer similarly provocative ideas about how a positive emotional state in early life may contribute to living longer. Experts say linking positive emotions in the autobiographies to longer life echoes other studies showing that depression increases the risk of cardiovascular disease and that people rated as optimists on personality tests were more likely than pessimists to be alive 30 years later.

Overall, Snowdon says, the nuns live significantly longer than other women. Of the 678 in the study, 295 are alive, and are all 85 or older. In the Mankato convent alone, there have been seven centenarians, many free of dementia.

Snowdon's condition that nuns donate their brains was a stumbling block for some of the sisters.

"I had a hard time with it," said Sister Claverine, who delayed signing up. "I had an image of myself being buried intact."

But Sister Rita Schwalbe, the convent's health administrator when the study began, said she had told them that as nuns they had made "the difficult decision not to have children."

"This is another way of giving life," she added.

**You will be tested**

After completing the cognitive and physical tests -- including identifying everyday objects and opening small doors with different latches -- the nuns get summaries of their results and can see if their performance has changed.

"Every time I get out of there I feel like an idiot," said Sister Blanche Becker, 88, who does crossword puzzles and reads Danielle Steel novels. "Here I am of sound mind and body and I sit there and open and close little doors and look at pictures and try to remember them all. But
maybe it's made me more tolerant of people with Alzheimer's."

Snowdon is quick to agree with other experts who say his conclusions need to be corroborated by other studies.

"He's pointed us in some directions," said Bill Thies, vice president for medical and scientific affairs at the Alzheimer's Association, based in Chicago, "but I think it's going to take a fair amount of work before we start making public health recommendations about behaviors that will prevent Alzheimer's."

And, although he cannot prove it scientifically, he believes the nuns' spirituality and community living help them too.

"You don't necessarily have to join a church or join a convent," Snowdon said.

"But that love of other people, that caring, how good they are to each other and patient, that's something all of us can do."

**Several nuns agree.**

"The science is important," Sister Miriam said. "But the science is dictated by providence any way."