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TCARE: Unlocking the Power of Psychosocial Data

By Michael Mings

Editor's note: The Technology Section awarded to TCARE the first prize of the InsurTech Innovation Networking Event at the 2018 SOA Annual Meeting & Exhibit. As a prize, TCARE was to write an article for the Technology Section's newsletter, presenting themselves and the gap they are filling. Enjoy the reading!

The United States is facing a looming crisis: the baby boomer generation is getting old. The Population Reference Bureau has estimated that by 2060, Americans older than 65 will make up 24 percent of the population (compared to 15 percent today), which is an increase from 46M to 98M). Not only is the US population rapidly aging but the means to support this generation in its older years is proving a more difficult challenge than it has been in the past. This is further complicated in part by dementia and other neurodegenerative diseases; by 2050 Americans with Alzheimer's Disease could nearly triple to 14M (compared to 5M recorded in 2013). Insurance providers are increasingly challenged to respond to these demands as exhibited by long-term care (LTC) insurance. Traditional LTC insurance sales have decreased by more than 90 percent. As the population ages and available LTC insurance options decrease, family caregivers are becoming increasingly relied upon to provide services in the absence of other viable options.

"In 1950, you had a one in thirty chance of becoming a family caregiver. Today, it's one in three."

—Theresa Harvath, founding director of the Family Caregiving Institute at the Betty Irene Moore School

Family caregivers juggle a variety of tasks depending on the specific circumstances of their care recipient, and some of these tasks are becoming increasingly more time consuming and complicated. Tasks range from providing transportation, coordinating doctor appointments, and preparing food to more complicated tasks such as managing catheters, operating home dialysis equipment and/or other medical duties. Given these challenges, caregiver burnout is a real and growing problem.



IDENTITY DISCREPANCY THEORY IN CAREGIVING

In response to the scale and criticality of this problem, we (TCARE) examined a new approach to tackle these challenges, using psychosocial data in addition to more traditional approaches. Beginning with the hypothesis that support hours (ADLs) alone was too simplistic and not the best indicator of caregiver burnout, other factors were considered beyond the physical aspects of caregiving. This led to the development and application of the Identity Discrepancy Theory in the identification and remediation of at-risk caregivers.

The general concept behind Identity Discrepancy Theory is that people have an internalized expectation/perception of their role and activities in the world and then there is the reality of what they actually engage in day to day. If there is a difference between these two it causes stress and the greater the difference the greater the stress. In a family caregiver situation as the responsibilities increase, the caregiver should experience increased emotional distress due to the differences between how the caregiver perceives their role in the relationship vs. the actualities of their role in the relationship with the care recipient. For example, a spouse who spent much of her life in a specific role with her husband might become distressed when her husband is now dependent on her for activities he previously performed in the relationship, for example, management of household finances, yard work/home maintenance, and so on. Throughout the caregiving journey the caregiver is in transition from their current role (spouse, sibling, child, etc.) to evermore increasingly that of caregiver.

In developing a model that could accurately evaluate caregiver well-being, a variety of questionnaires were created and evaluated for efficacy and fit. The stresses discussed previously as part of the identity discrepancy were further partitioned out into a set of multidimensional component question groups (discrete burden measures) as follows:

1. **Stress Burden**—A measurement of anxiety or depression the caregiver experiences.
2. **Relationship Burden**—The extent to which the caregiver perceives the care recipient to be manipulative or overly demanding.
3. **Objective Burden**—The degree to which caregiving imposes observable aspects onto a caregiver’s life, such as time for self and others.

Gender and length of caregiving were used as control variables, as these were known to have different effects among caregivers. The questionnaire was finalized around the burden measures listed above. In the study, the number of hours caregivers helped with activities of daily living (ADLs) was also measured. Through the collection of data from 358 spousal caregivers (caregiver and care receiver dyad data) and analyzing the hypothesized model (Figure 1) with structural equation modeling (SEM) for fit,

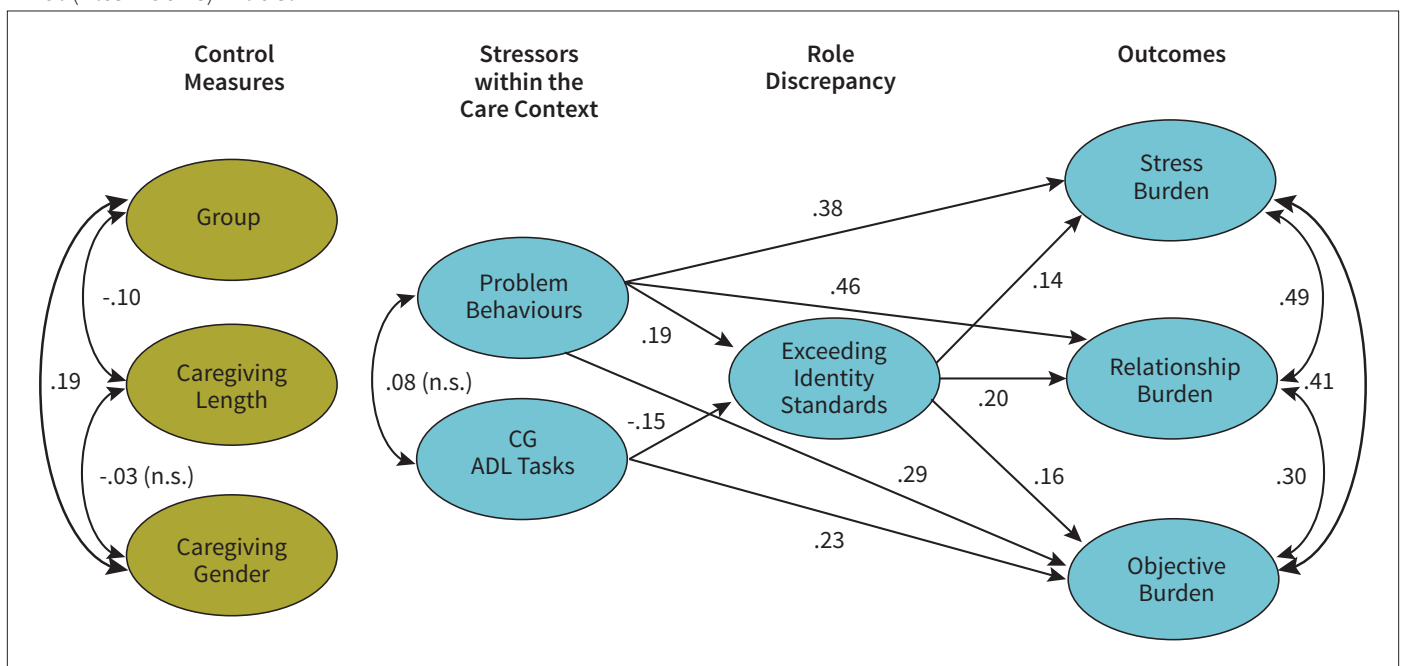
two important observations were established. It was discovered that the hours spent with ADLs are not inherently distressing; only when the performance of those ADLs goes beyond the perceived call of duty does it become stressful. A statistically significant relationship was supported by the multidimensional stress burdens (stress, relationship, and objective) and the caregiver’s identity discrepancy.

OPERATIONALIZING THE TCARE SOLUTION

With a functional model available, the buildout of the full protocol, inclusive of all the operational components (assessment, response, remediation, monitoring and prevention), commenced. Identification of caregiver burnout risk alone is not helpful without the ability to effect change for the caregiver through the application of targeted resources to help remediate the caregiver’s stress. To support this, a decision tree model was developed that identifies the type of caregiver burnout issue/s currently present within the dyad (issues can be different between a single caregiver with multiple care recipients). These fall into six major categories, which can be identified through their distinct fingerprints across the burden scores and the caregiver’s expressed intention to place the care recipient into a care facility.

A resource database was also constructed and populated with providers/solutions, mapped to the discrete problem drivers,

Figure 1
Final (Alternative) Model



Note: All parameter estimates are standardized and significant unless otherwise stated. Controlling for variables in SEM requires direct paths (not shown) from control measures to each latent construct in the model. ADL = activity of daily living; CG = caregiver

for the caregiver to perform the needed remediate for their issue(s). These components were then wrapped together in a software package with additional services supporting caregiver engagement (communications and monitoring) and workflow/case management. Since then the solution has been deployed to numerous customer groups.

TCARE SOLUTION RESULTS AND FUTURE POSSIBILITIES

Often if you ask a caregiver what they need, they will request some form of respite. Most of the time this is not the most impactful response and does not tackle the root cause of the caregiver's stressors. This approach provides for a more acutely focused solution to the caregiver's needs. Analysis of caregivers who have gone through the TCARE protocol vs. the control group reveals both a significant reduction in insurance service utilization (-20 percent in Medicaid groups) and a 21-month delay in nursing home placement, which results in millions of dollars in savings (health and LTC insurance) in addition to the benefits realized by both the caregiver and recipient due to their ability to age in place longer. Follow-up research is also being conducted to analyze potential increases in longevity in

the cohort, which would drive additional benefits, for example, increased revenue yields for associated life insurance providers.

Work continues to enhance the effectiveness of the existing solution, leveraging the ever-growing set of historical data augmented with third-party data and applying new, advanced and adaptive modeling techniques (supervised and unsupervised learning). The results, both historically and those from the new research efforts, are better than initially expected and suggest many other possible use cases in adjacent and unrelated domains. This includes research work already underway on risk rating populations of insurance policy holders and the creation of hybrid LTC insurance instruments with less risk and better yields. With the recent World Health Organization (WHO) designation of burnout as an official medical diagnosis (ICD-11), an employee risk/retention solution is showing promise. ■

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