THE ISSUE IS...

Enhancing Our Collective Research Acumen by Using an Epidemiological Perspective

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Nearly 50 million Americans report some level of disability in activities of daily living or instrumental activities of daily living. Public health officials advocate for a fresh perspective on disability by considering disability through an epidemiological approach. Should occupational therapists perform this research, and what are the benefits for our profession if we do? This article advocates for enhancing our research knowledge base by including an epidemiological perspective in our research design. The benefits to occupational therapy of this research include (1) increased understanding of the extent and nature of occupational performance disability, (2) advancement of the scope and depth of research for prevention and intervention programs, and (3) improved visibility of the profession as informants for public health policy. Suggestions for preparing researchers to perform these studies and students and practitioners to interpret the studies are provided.


In the United States, 40–50 million people identify themselves as having at least one disability in activities of daily living (ADLs) or instrumental activities of daily living (IADLs; Institute of Medicine, 2007). U.S. public health officials, concerned with the protection, promotion, and restoration of health in our population, have taken notice. For the first time since its inception, Healthy People 2010, a roadmap for public health initiatives, has goals targeting people with disability (U.S. Department of Health and Human Services, 2000). Consequently, arguments have been made for structuring an examination of “disability” through an epidemiological approach, methodologies traditionally used to examine disease in public health models (Lollar, 2002). Epidemiology is the study of how a disease occurs in a population, as well as factors that protect against or increase the risk of getting the disease. Through epidemiology, we identify symptoms and patterns of disease, make prognoses, and develop cures. As such, epidemiological studies are considered the cornerstone of understanding, preventing, and treating disease (Gordis, 2004).

An argument can be made that basic epidemiological constructs (e.g., cause, risk factors, prognosis) are instrumental for developing a strong theoretical basis for intervention (Khoury, Gwinn, & Ioannidis, 2010). Applying an epidemiological perspective to occupational therapy requires us to ask ourselves whether we have the knowledge base to answer questions related to cause, risk, and prognosis for occupational performance disability. If this knowledge is not readily accessible in our collective research acumen (what we know as a profession), should we respond to this call to examine disability differently? What are the benefits if we do?

Given our knowledge of occupational performance disability, I argue that we should answer this call with deliberative research aimed at identified gaps. Therefore, the aim of this article is to suggest research considerations for examining occupational performance disability through an epidemiological perspective to augment our profession’s collective knowledge base. By adding this perspective to our research agenda, we can expect to (1) more fully understand the extent and nature of occupational performance disability, (2) advance the scope...
and depth of research for prevention and intervention programs for occupational performance disability, and (3) improve our visibility as informants for public health policy.

More Fully Understand the Extent and Nature of Occupational Performance Disability

The first benefit of using epidemiological methodologies in our research is that doing so provides us with the framework to examine important concepts related to the extent and nature of occupational performance disability, such as the causes of and risk factors for disability, the extent to which occupational performance can be characterized as a cause of or risk factor for physical and mental health, the definition and scope of occupational performance disability in the population, and the course of occupational performance disability over time.

Causes of and Risk Factors for Occupational Performance Disability

Identifying the causes of and risk factors for occupational performance disability is critical to designing effective prevention and intervention programs targeted to vulnerable populations. Through an epidemiological methodology, the occupational therapist can answer the questions “What factors contribute to occupational performance disability?” and “Who is at risk for occupational performance disability?” For example, variables such as older age and current ADL and IADL limitations are known to put clients at higher risk for future disability (Wu et al., 2000). Although these questions have not been aggressively pursued in occupational therapy research, researchers outside our profession have asked similar questions. For example, researchers in public health, gerontology, and disability have studied determinants of ADL and IADL disability, yielding a variety of cognitive, psychosocial, physical, and environmental factors that cause such disability (Reynolds & Silverstein, 2003).

Despite this abundance of research, two critical issues arise for its use in clinical occupational therapy. First, because this literature is not published or reviewed in our journals, occupational therapists may not be aware of it. Occupational therapy researchers need to organize and analyze the quality of existing ADL and IADL research and make findings accessible to occupational therapy students and practitioners for practical use and to researchers so that new directions for investigation can be identified. Second, although this research is informative, more specific direction for occupational therapy practice will be required. Research identifying the determinants of disability for specific occupational performance disabilities is needed. For example, what causes disability in bathing or cooking? Occupational therapy researchers have designed studies that allow us to examine factors associated with specific ADL and IADL disability in clients after stroke (Skidmore, Rogers, Chandler, & Holm, 2006). Their findings revealed that different performance areas have different determinants of disability. Hand function was more important to performing ADLs than it was to bowel and bladder urgency issues; cognitive skills were more important to IADL performance. This research highlights the need to study determinants of occupational performance disability in a variety of occupational areas across diagnostic categories.

In considering which client factors cause occupational performance disability, body structure and body function variables (i.e., grip strength, memory) are natural choices. However, more research is needed on the influence of performance patterns (roles, habits, routines) and contexts (physical and social environments) in creating or protecting against disability. Multivariate models testing direct and indirect effects of these variables on disability and health are needed to confirm our practice models. Qualitative research should supplement our understanding of disability by giving voice to personal experiences that support and inform quantitative research.

Extent to Which Occupational Performance Can Be Characterized as a Cause of or Risk Factor for Physical and Mental Health

Identifying satisfactory performance of meaningful occupation as a determinant of good physical and mental health would elevate the necessity of our profession for all stakeholders concerned with the health of our citizens. Epidemiology-based research questions, such as “Do occupational performance disabilities predict depression or physical decline in people with Alzheimer’s disease?” allow us to consider how loss of occupation affects emotional and physical health. Encouragingly, occupational therapy researchers have shown a positive link between successful occupational performance and positive health, including prevention of worsening morbidity and decreased mortality within community-based populations (Jackson, Carlson, Mandel, Zemke, & Clark, 1998); health service research has also shown positive health outcomes (i.e., decreased mortality) after rehabilitation in which functional performance was improved (Bachmann et al., 2010). More research is needed to firmly establish the link between occupational performance and health outcomes, particularly in settings previously unstudied, such as school systems, hand clinics, and mental health settings. Factors that moderate these associations, such as depression and social support, also require investigation.

Definition and Scope of Occupational Performance Disability in the Population

To accurately measure the extent of disease in a population, we must begin with criteria that consistently define the disease. In other words, occupational therapists using an epidemiological approach must answer the question, “How do we define occupational performance disability?” In occupational therapy, as in other professions measuring disability, we use different definitions of disability and multiple methods for quantifying disability (Institute of Medicine, 2007). For instance, some researchers use tools that define occupational performance disability as lack of task independence; other researchers contend that independence in task performance may not necessarily equate to safety and adequacy of performance, which are arguably equally contributing constructs to the definition of performance (Rogers, Holm, Beach, Schulz, & Starz, 2001). Therefore, occupational therapy researchers should come to consensus on how disability...
is defined and quantified so that we use tools that measure occupational performance validly and consistently across studies.

As an extension of the need to clearly define occupational performance disability and independence, we also need to clearly describe those patterns (habits and routines) that support or inhibit satisfactory occupational performance. For example, researchers interested in describing patterns of occupational performance could ask questions such as, “What are the supportive habits associated with independence in money management and do these patterns vary by age, gender, or race/ethnicity?” If we determine, for example, that using online bill paying (a money management habit) is associated with fewer errors in money management, then clinicians may choose to discuss this option with appropriate patients struggling to pay their bills accurately. An example of this type of research is an article by Reistetter, Chang, and Abreu (2009) describing typical showering patterns in people with and without traumatic brain injury. By identifying patterns that are known to support satisfactory occupational performance, we are better prepared to define the constructs of disability and independence in occupational performance.

After we have defined the construct of occupational performance disability, we can accurately measure the extent of disability within the populations we serve. Using an epidemiological perspective, occupational therapists can answer incidence questions, such as “How many children were diagnosed with a new handwriting performance issue last year?” or prevalence questions, such as “How many children reported difficulty with handwriting this year?” Extent of occupational performance disability can also be described by trends or levels. Trends indicate the direction of a statistic over time. For instance, our profession could answer questions such as, “Did the number of children reporting handwriting problems increase from 2009 to 2010?” Deeper investigation could examine differences in occupational performance disability by sociodemographic characteristics (i.e., levels). Occupational therapy researchers then ask, “Does handwriting performance vary by age, gender, or race/ethnicity?” By fully understanding the scope and range of occupational performance disability, we are better prepared to advocate for adequate occupational therapy service provision, both nationally and locally.

**Course of Occupational Performance Disability Over Time**

Expertise in a disease or disability requires knowledge of the natural course of how the disease unfolds and timing for when changes occur. Using an epidemiological perspective, we can ask questions such as, “How does bathing disability begin or progress for people with pulmonary disease?” Next, we could consider the potential for recovery. “Who will return to bathing in the tub or shower?” We need quantitative and qualitative evidence to support our educated estimations about the course of performance disability to improve our understanding of occupational performance and provide appropriate recommendations for intervention.

While studying the course of disability over time, we also need to evaluate the “window” within which disability occurs (Gordis, 2004). For example, occupational therapists can easily associate diabetes with occupational performance disability, but we must next ask the question, “When does the disability occur within the disease process?” Will disability begin before the diagnosis of diabetes (preclinical disease), once signs and symptoms are present (clinical disease), or after prolonged exposure to disease (chronic disease)? The answer will likely differ for different diagnostic categories. For example, people with dementia may show occupational performance disability before a clinical diagnosis, whereas those adults with arthritis may show disability only after clinical disease has been established or later in chronic stages. The timing of occupational performance disability is important for advocating for services along specific timepoints for the clients and families we serve. Finally, qualitative research that questions the experience of progressive disability and develops theories related to factors that modify disability outcomes is critically needed.

**Advance the Scope and Depth of Research for Prevention and Intervention Programs for Occupational Performance Disability**

The second benefit of using an epidemiological perspective is that it supports our urgent need to produce outcome studies assessing the effectiveness of our interventions (Baum, 2006; Rogers, 2010). Occupational therapy researchers using an epidemiological perspective examine prevention and treatment interventions for efficacy (works in clinical environment), effectiveness (works in natural environment), and efficiency (cost-effectiveness). When plausible or necessary, this research should also extend across the lifespan and within various age and racial/ethnic groups to ensure public safety and translational effectiveness across groups and treatment settings. For example, researchers may ask the question, “Is visual imagery effective for improving bathtub transfers across racial/ethnic groups when delivered using a pre-recorded CD in the person’s home?” By exploring our efficacious clinical intervention across settings and groups, we fully understand the translatability of our findings.

Using epidemiological methodologies, we can also examine how occupational therapy services are structured to deliver effective care. This requires assessing frequency (how often), dosage (how much), delivery personnel (occupational therapist vs. occupational therapy assistant), and the optimal setting for services (clinic, home, community). Occupational therapy researchers using an epidemiological perspective would ask the question, “What is the difference in dressing skill outcomes if the practitioner (occupational therapist vs. occupational therapy assistant) provides 30-min sessions daily versus 3 times per week?” As an example, optimal occupational therapy services for patients and families living with dementia have been quantified; moreover, mechanisms for training occupational therapists to deliver optimal care using these standard methods have ensured success in translating this treatment to clinicians (Gitlin et al., 2009).
Although some occupational therapists shudder at the idea of standardization of services, successful replication of positive outcomes across settings is necessary to advance our profession scientifically and remain a reimbursable service.

Qualitative research has much to add to our prevention and intervention knowledge base. Understanding individual experiences as people undergo specific interventions and process their own outcomes from therapy is critical research. In addition, interacting with the community to determine its own needs for prevention and treatment through participatory action research informs prioritization and necessity of program development. Through participatory action research, a researcher may find that people with osteoarthritis are more interested in how to access public transportation than in how to correctly modify a bathroom. Finally, systematic reviews of existing qualitative and quantitative intervention research richly inform clinical practice and outcomes research priorities.

**Improve Our Visibility as Informants for Public Health Policy**

The third benefit of using an epidemiological perspective is that it advances the visibility of our profession as informants for health care policy related to screening, intervention, and the influence of policy change on occupational performance and health (Young, 2005).

**Informants to Advance Disability Screening**

Research done by occupational therapists could improve national awareness of what is gained from early screening in areas important for our clients. As an example, imagine the day when it is public policy for adults >60 yr to receive a yearly disability screening in addition to regular screenings for blood pressure or cancer. This type of policy is possible if occupational therapy researchers using an epidemiological perspective ask research questions such as, “What type of screening tool could effectively identify community-dwelling adults with ADL issues?” or “Is early bathroom modification a cost-effective way to minimize or delay the progression of disability in bathing?” Basic science knowledge such as the course and timing of disability and optimal intervention delivery schedules should inform these ideas.

**Informants to Improve the Health of the Population**

Occupational therapy has the potential to offer salient solutions for better living to large groups of people in the community, referred to as *population-level health care* (Moyers & Dale, 2007). We accomplish this by developing and testing health promotion programs delivered within neighborhood settings. As an example, occupational therapy researchers have demonstrated the success of implementing arthritis intervention programs for community-dwelling adults (Mallinson, Fischer, Rogers, Ehrlich-Jones, & Chang, 2009). These programs are necessary to provide adequate services for those that do not fall within reimbursable health conditions and situations. While testing these programs, researchers should also consider exploring cost-saving strategies and safety by asking, “After training, can a lay person effectively teach this intervention?” Without an occupational therapist to evaluate the necessity and safety of an individual using an intervention provided by these community programs, we should also ask, “Is this training adequate for the safe use of a raised toilet seat?” To the extent that published reports exist on these research areas, systematic reviews are needed to organize our knowledge base and provide direction for future research.

**Informants of the Impact of Changes in Public Health Policy**

Finally, it is important to provide information to public health officials on the impact public policies have on occupational performance disability and general health outcomes. For instance, in a study comparing health outcomes before prospective payment system (PPS) to those after PPS, overall functional ability at discharge remained clinically stable, but overall mortality increased after PPS (Ottenbacher et al., 2004). Moreover, research analyzing the health benefits of specific occupational therapy services must also be examined across treatment settings. An occupational therapy researcher may ask, “Are health outcomes different in settings where occupational therapy is provided as a required service?” Finally, qualitative research is needed on the experiences of people accessing health care, including facilitators and barriers to access and, ultimately, how they feel this affected occupational performance outcomes and the need for additional services.

**Professional Readiness**

The ideas presented in this article are complementary to the occupational therapy research priorities established by the research advisory panel, a joint collaboration between AOTA and the American Occupational Therapy Foundation (Rogers, 2010) that calls for systematic studies in basic research, intervention, and health services research. Yet, we each must consider our professional preparation to engage in and interpret epidemiological research. This perspective does not require that we become epidemiologists; rather, it requires that we view disability through an epidemiological lens. As a profession, occupational therapy has scholars with advanced knowledge in epidemiology and public health who can support our efforts to broaden our research questions and designs. Shaping these new methodologies may also involve collaboration with teams with epidemiological backgrounds as well as requiring our graduate students to engage in postprofessional course work emphasizing this framework. Occupational therapy research courses and textbooks with sections dedicated to understanding occupational performance disability from an epidemiological perspective enhance student and, subsequently, practitioner awareness of how to develop, implement, and interpret findings from these types of studies.

**Summary**

Occupational therapy researchers can enhance our profession’s collective research acumen by using an epidemiological perspective when structuring future directions.
for research. However, extra preparation or new collaborations may be needed to use this research focus. The benefits are a deeper understanding of occupational performance disability and a higher profile as policy informants for public health. This call to action is one that occupational therapy should answer, for the benefit of our profession and the clients we serve.

References


