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The Stress Process Model and In-home Respite for Caregivers of Cognitively and Physically Impaired Older Adults

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Running head: THE STRESS PROCESS MODEL AND IN-HOME RESPITE

The Stress Process Model and In-home Respite for Caregivers of
Cognitively and Physically Impaired Older Adults

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A Dissertation submitted to the Graduate School at the University of Missouri – St. Louis

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Doctor of Philosophy in Psychology

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Abstract

Common problems in the family caregiving respite outcome literature include little attention to in-home respite, lack of theoretical grounding, and low rates of respite utilization. This dissertation study utilized the predominant model of family caregiving stress, the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990), to (1) investigate the variables through which in-home respite impacts caregivers and to (2) investigate the factors that predict utilization of respite services. Participants (N = 74) were family caregivers receiving federally subsidized in-home respite. Results indicate that both prior hours of in-home respite services and respite time devoted to non-care related chores were significantly related to reduced levels of caregiver depression. Longitudinal data pertaining to 3-month in-home respite utilization reveal that prior in-home respite service usage was the best predictor of future service use. The implications of these data for the provision of in-home respite services and future research are discussed.

Acknowledgements

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I would also like to take the opportunity to recognize my most important source of support in every respect: my family. Thank you for seeing me through the peaks and valleys of graduate school and every other experience. I am blessed to be part of such a close-knit and fun group.

Finally, this dissertation is dedicated to Josh: my husband, best friend, and unwavering supporter. After making many attempts, I have realized that it is impossible to find the words to appropriately acknowledge and thank you for your continuous encouragement and support during this process. So, I am going to keep it simple and say that I will always be immensely grateful to you for taking this and every journey with me.

The Stress Process Model and In-home Respite for Caregivers of Cognitively and Physically Impaired Older Adults

Providing care for a disabled loved one is a physically and emotionally demanding long-term activity (Schulz & Martire, 2004). Currently, 41.9 million Americans over the age of 65 suffer from a disability, and 27.2 million Americans identify themselves as informal caregivers (Feinberg, Newman, Gray, Kolb, & Fox-Grage, 2004). These figures will become even larger as the U.S. elderly population continues to grow. By the year 2030, it is estimated that persons aged 65 and older will comprise 18.6% of the population, whereas this group comprised only 12.4% in 2000 (U.S. Census Bureau, 2004). The implications of this population increase are significant in regard to disability. Persons are living longer; thus, more individuals will suffer from chronic illnesses of longer duration, and will require assistance from family (Schulz & Martire, 2004).

Family caregiving has been associated with numerous adverse physical and mental health outcomes. Reviews of the caregiving literature indicate that family caregivers engage in fewer preventative health behaviors (Schulz & Martire, 2004) and view themselves to be in poorer physical health than non-caregivers (Pinquart & Sorenson, 2005). Family caregivers may be at a heightened risk of negative physical outcomes due to high levels of stress hormones, low levels of antibodies (Vitaliano, Zhang, & Scanlan, 2003), cardiovascular reactivity, and slow wound healing (Schulz & Martire, 2004). Although the data in regard to negative physical health outcomes are currently inconclusive, research findings in regard to mental health outcomes are clearer (Pinquart & Sorenson, 2005; Vitaliano et al., 2003). The psychological impacts of caregiving include a heightened susceptibility to clinical depression and depressive symptomatology (Pinquart & Sorenson, 2005; Schulz & Martire, 2004), anxiety (Schulz &

Martire, 2004), increased rates of emotional distress, and reduced subjective well-being (Pinquart & Sorenson, 2005). Caregivers who are spouses (Butler, Turner, Kaye, Ruffin, & Downey, 2005), female (Dunkin, Anderson-Hanley, & Cummings, 1998; Pakenham, 2001; Schulz & Martire, 2004), and with lower income (Covinsky et al., 2003; Dura, Stukenberg, & Kiecolt-Glaser, 1991) are particularly susceptible to negative psychosocial outcomes.

Although researchers have determined that care recipient variables (such as behavioral problems, cognitive impairment, and functional impairment) significantly predict nursing home placement, they have concluded that family caregiver physical and mental health variables significantly predict rates of institutionalization, above and beyond these common care recipient problems (Dunkin et al., 1998). In 2000, the federal government allocated 18.2 billion dollars in Medicaid funding to long-term care for Alzheimer's patients alone, and this number is expected to increase to 33 billion dollars per year by 2010 (Alzheimer's Association, 2001). Clearly, from not only a moral, but also a fiscal standpoint, it is imperative to provide family caregivers with the community resources they need in order to maintain their own physical and psychological health while caring for an impaired elderly family member.

In recognition of the plight of family caregivers, the federal government passed Public Law 106-501 in 2000 as an amendment to the Older Americans Act. This legislation created the National Family Caregiver Support Program (NFCSP), a government program with the goal of providing caregivers the necessary community supports to delay the institutionalization of impaired family members. The NFCSP is funded by federal and state monies and is implemented locally by Area Agencies on Aging (AAA). This program offers qualifying family caregivers information and assistance regarding accessing available community services.

Additionally, and more importantly, a core component of this program is the provision of federally subsidized respite care.

The primary goal of the current study is to better understand respite services as they are utilized within the community. An existing sample of community family caregivers currently receiving NFCSP in-home respite services through the Mid East Area Agency on Aging (MEAAA) (N = 154) was contacted via telephone and invited to participate in the study. Interested and eligible caregivers (N = 74) participated in telephone interviews lasting approximately one and one-and-one half hours and involving questions regarding care recipient problems (i.e., functional impairment, cognitive impairment, behavioral disturbance), family caregiver psychosocial variables (i.e., depression), and family caregiver use of respite time. Participants also completed mail-back questionnaires involving demographic questions and questions pertaining to care recipient functional ability. The MEAAA provided objective in-home service usage data for the three months following each participant's telephone interview. It is hypothesized that the variables of family caregiver discretionary time and non-care related chore time on a typical respite day will be significantly related to family caregiver depressive symptoms, after controlling for relevant variables. Additionally, it is hypothesized that for family caregivers currently using in-home respite services, contextual variables (i.e., non-spousal caregivers and higher income) and elevated levels of care recipient problems will predict higher rates of respite utilization.

Respite Services

Formal respite care is a community resource in which paid professionals provide quality supervision for an impaired family member while offering the caregiver the opportunity for temporary leave from the caregiving situation. This resource is offered in three main formats: in-

patient respite care, adult day care, and in-home care. In-patient respite care consists of a fixed, non-interrupted period of time (typically one to two weeks) in which the care recipient resides in a hospital, rehabilitation center, or skilled nursing facility (Gräsel, 1997). Compared to in-patient respite, adult day care (ADC) is a less intensive form of ongoing respite in which care recipients are transported one or more times per week to an agency within the community that provides day services such as supervision, meals, activities, health care, and various therapies (Gaugler, Jarrott, Zarit, Parris-Stephens, Townsend & Greene, 2003b). ADC services differ in the extent to which they are medically focused (i.e., focused upon medical care and rehabilitation) or socially based (i.e., focused on social and recreational activities) (Leitsch, Zarit, Townsend, & Greene, 2001; Weissert et al., 1989). Finally, in-home respite consists of supervision and some personal care provided within the caregiving dyad's home (Pot, Zarit, Twisk, & Townsend, 2005).

It is important to note that family caregivers report some practical limitations to using respite. For example, caregivers identified the following community and agency-level problems with accessing and using respite services: stigma (Ritchie, 2003), difficulty coordinating services (Ritchie, 2003), problems paying for respite (Montgomery, 1995; Ritchie, 2003), and respite services staffed by volunteers (Montgomery, 1995). Family caregivers also report the drawbacks of needing to convince the care recipient to attend and participate in respite programs (Ritchie, 2003) and the increased time needed to ready the client to attend respite (Berry et al., 1991; Jarrott, Zarit, Parris-Stephens, Townsend, & Greene, 1999). The current literature on the shortcomings of respite is thus primarily focused upon practical difficulties with accessing respite.

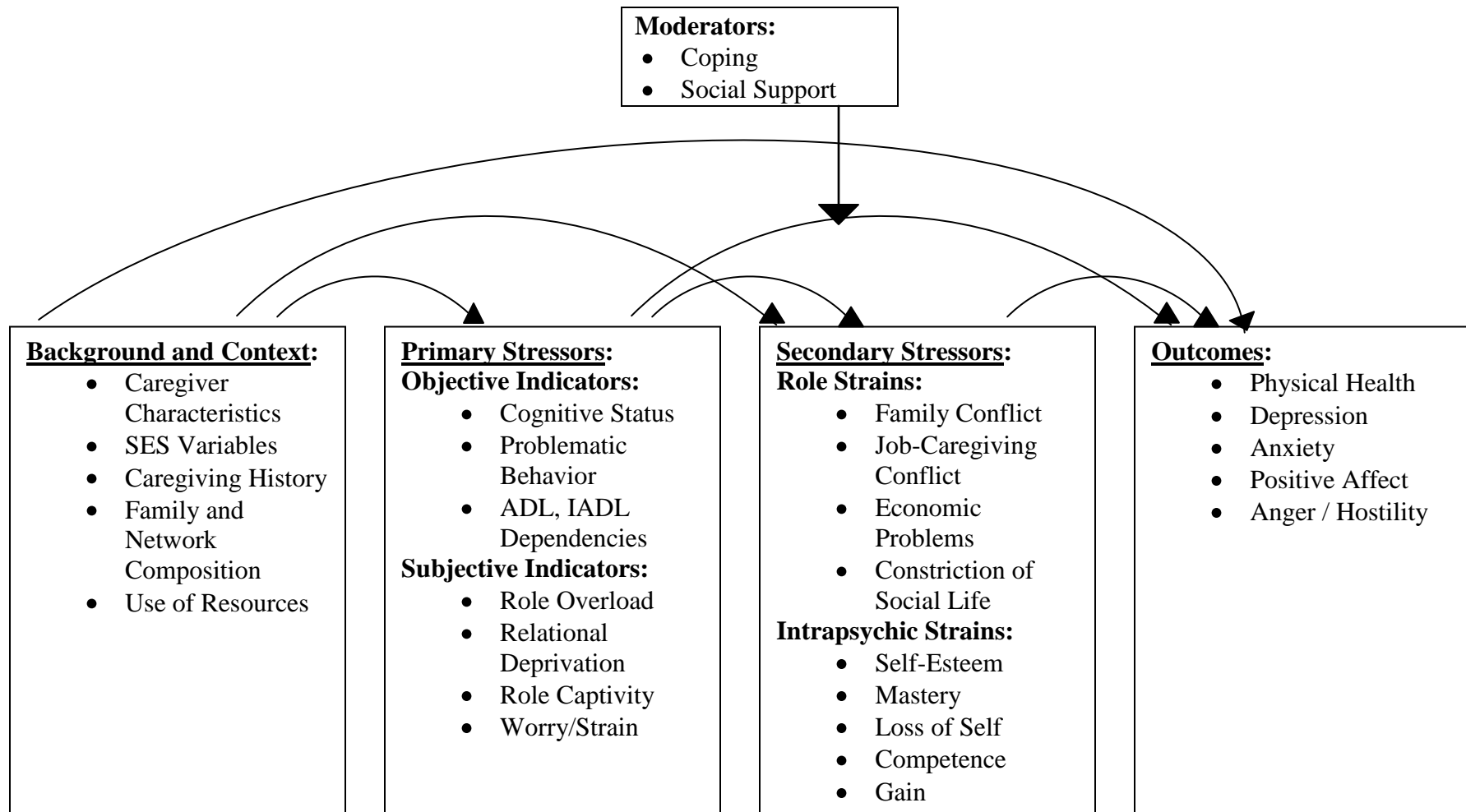
In regard to studies that examine the ability of respite services to impact family caregiver and care recipient physical and psychosocial variables, the presumption behind respite is that family caregivers will benefit from breaks in caregiving. Very few researchers, however, have utilized theory in order to formulate hypotheses regarding processes of change and anticipated outcomes. Quality research studies that are grounded in theory, however, invariably utilize the Stress Process Model of Caregiving (Aneshensel, Pearlin, Mullan, Zarit, & Whitlatch, 1995; Pearlin, Mullan, Semple, & Skaff, 1990), which has received research support in regard to diverse caregiving situations (Alspaugh, Stephens, Townsend, Zarit, & Greene, 1999; Aneshensel et al., 1995; Bookwala & Schulz, 2000; Gaugler, Davey, Pearlin, & Zarit, 2000; Hartke, King, Heinemann, & Semik, 2006; Mitrani et al., 2006; Provencher, Perreault, St-Onge, & Rousseau, 2003). This model links contextual elements with primary stressors, secondary stressors, and ultimately, family caregiver outcomes.

The Stress Process Model

In the Stress Process Model (Figure 1), a number of antecedent variables interact to produce negative physical and emotional outcomes for dementia family caregivers. The caregiving context and background is the first of these antecedent variables. Knowledge of caregiver characteristics (e.g., age, gender, ethnicity, education, income, etc.), the nature of the relationship of the dyad (e.g., spouse, adult child, sibling, etc.), the duration of caregiving duties, and access to and use of resources (formal and informal) forms an important basis with which to understand the stresses impacting a particular dyad (Aneshensel et al., 1995; Pearlin et al., 1990).

Figure 1

The Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990)



Additional critically important antecedents within this model are stressors, which are conceptualized as “the conditions, experiences, and activities that are problematic for people” (Pearlin et al., 1990; p. 586). In this model, primary stressors are those variables that are directly impacted by the care recipient’s disease process (Pearlin et al., 1990). Primary stressors can be objective or subjective. Objective stressors reflect observable symptoms or behaviors in the care recipient. Common primary objective stressors include the care recipient’s cognitive status, behavioral problems, and functional disabilities. Subjective primary stressors are those variables that reflect the extent to which caregiving duties are taxing to the caregiver and require his or her time and effort. These stressors include role overload (i.e., fatigue with duties and the extent to which duties seem unceasing), role captivity (i.e., feelings of being trapped within the caregiver role), worry/strain (i.e., persistent physical and emotional tension), and relational deprivation (i.e., the fundamental change in the dyad’s former relationship) (Aneshensel et al., 1995; Pearlin et al., 1990; Zarit & Zarit, 1998; Zarit, Stephens, Townsend, & Greene, 1998).

Secondary stressors in the Stress Process Model are viewed as difficulties that indirectly stem from primary stressors. These variables reflect the caregiver’s appraisal of the impact of primary stressors upon his or her lifestyle and well-being (Pearlin et al., 1990; Zarit & Zarit, 1998). Secondary stressors within this model are conceptualized within the categories of role strain and intrapsychic strain (Pearlin et al., 1990). Role strain represents the impact of caregiving upon the family caregiver’s diverse roles (i.e., familial, occupational, economic, and social). For example, role strain can be evidenced in this model as a restriction in the family caregiver’s social and recreational activities. Conversely, intrapsychic strain reflects changes to the caregiver’s self-concept. The concept of strain, thus, appears in varying forms among primary and secondary stressors. The primary stressor of caregiver worry/strain reflects the

caregiver's appraisal of primary objective stressors as causing increased physical and psychological tension (Zarit et al., 1998). The secondary stressors of family caregiver role strain and intrapsychic strain, however, represent concerns that are not directly related to the act of caregiving, but rather, stem indirectly from the impact of caregiving activities upon other role obligations and one's sense of self (Aneshensel et al., 1995).

Included as moderators within this model are the variables of coping and social support (Aneshensel et al., 1995). Specifically, those with effective coping strategies and high levels of social support are hypothesized to be less likely to experience primary stressors as intense and to suffer subsequent elevations in secondary stressors. The Stress Process (Aneshensel et al., 1995; Pearlin et al. 1990) is hypothesized to impact various physical and mental health outcome variables, given on-going family dementia caregiving conditions. These variables include physical outcomes as well as psychological outcomes such as depression, anxiety, anger, and positive affect.

Respite Outcome Research –Summary and Critique

The following discussion will highlight major findings in regard to Stress Process variables and critique conceptual and methodological shortcomings within the respite outcome literature. Given the methodological superiority of ADC studies, the majority of research findings discussed will be in regard to this form of respite; however, important in-home outcomes will also be noted.

Stress Process Research Summary

The following discussion will highlight major research findings in regard to the ability of respite to impact Stress Process variables (Aneshensel et al., 1995; Pearlin et al., 1990). Prior to discussing outcomes, it is necessary to first describe the Adult Day Care Collaborative Study

(ADCCS) (Zarit et al., 1998) (N = 324), from which numerous high quality findings in this area emerge (Table 1). The purpose of this research effort was to address some of the prominent limitations in prior respite outcome research, including: low magnitude of care for the treatment group, control groups with access to respite services, collection of post-treatment data only, inclusion of participants who already used respite services, short longitudinal assessment intervals, and lack of a conceptual or theoretical framework (Zarit et al., 1998). Zarit et al. (1998) appropriately addressed these concerns in their research project, resulting in some of the strongest research methodology in this area to date.

In this quasi-experimental study, Zarit et al. (1998) created a treatment group from New Jersey, a state in which caregivers have access to a network of ADC services that are subsidized for those dementia caregivers with limited income. The comparison group was taken from counties in Ohio and Pennsylvania, areas with a similar demographic make-up to New Jersey according to census data, and areas in which ADC services were very scarcely available. Participants were assessed across four different time intervals, with the last assessment occurring at 12 months after baseline. To be eligible for inclusion, caregivers had to live with and provide the majority of care for a family member with a physician-confirmed dementia diagnosis. Further, caregivers were eligible only if they had not received ADC services within the past three months, and they were not using more than eight hours per week of other paid in-home services. Only those caregivers who used at least two days of respite per week across the assessment intervals were included in analyses. ADCCS researchers and other investigators have generally found promising results in regard to primary subjective stressors and psychological outcomes.

Table 1

Description of Publications from the Adult Day Care Collaborative Study (ADCCS)

Researcher(s)	Sample Size	Description of Sample	Variables Assessed	Eligibility Criteria	Exclusionary Criteria	Findings
Zarit et al. (1998)	N = 324	Data from Time 1 and Time 2	Role captivity, role overload, worry/strain, depression, anger, positive affect	<ol style="list-style-type: none"> 1. care recipient dementia diagnosis 2. caregiver is primary 3. no use of ADC for past 3 months 4. ≤8 hrs/week of other services 5. care recipient is mobile 	<p>All: incomplete data, no longer primary caregiver, institutionalization</p> <p>T: minimum ADC use</p> <p>C: use of ADC, 8+ hours paid help, decline in physical health</p>	<p>3 month outcomes: reduced overload, strain, depression and anger compared to control group</p> <p>1 year outcomes: reduced overload and depression compared to control group</p>
Jarrott et al. (2000)	N = 122	Data from Time 1 and Time 2 of treatment group only	ADL/IADL, memory, behavior, estimates of caregiver time	<ol style="list-style-type: none"> 1. care recipient dementia diagnosis 2. caregiver is primary 3. no use of ADC for past 3 months 4. ≤ 8 hrs/week of other services 5. care recipient is mobile 	<p>All: change in work status, less than 8 hrs/week of employment</p>	<p>3 month outcomes:</p> <ul style="list-style-type: none"> • reduced time spent on care recipient behavior problems • reduced time that care recipients spend alone • increased time away from care recipient

Table 1 (continued)

Researcher(s)	Sample Size	Description of Sample	Variables Assessed	Eligibility Criteria	Exclusionary Criteria	Findings
Leitsch et al. (2001)	N = 261	Data from Time 1 and Time 2	Role captivity, overload, worry/strain, depression, anger, positive affect, atmosphere of ADC (social or medical), ADL/IADL, behavior, financial strain	<ol style="list-style-type: none"> 1. care recipient dementia diagnosis 2. caregiver is primary 3. no use of ADC for past 3 months 4. <=8 hrs/week of other services 5. care recipient is mobile 	<p>All: > 8 hrs/week of paid help, caregiver not available, caregiver refused,</p> <p>T: care recipient did not use ADC</p>	<p>3 month outcomes:</p> <ul style="list-style-type: none"> • no differences between caregiver stress or well-being between models • no difference between care recipient impairment
Gaugler et al. (2003)	N = 400	Data from Time 1 and Time 2	Role captivity, role overload, worry/strain, depression, anger, behavior problems, ADLs/IADLs, memory, caregiver hours, formal service hours	<ol style="list-style-type: none"> 1. care recipient dementia diagnosis 2. caregiver is primary 3. no use of ADC for past 3 months 4. <=8 hrs/week of other services 	<p>All: no longer primary caregiver, care recipient deceased, caregiver not available, caregiver refused, institutionalization</p> <p>T: discharged from ADC</p> <p>C: used ADC</p>	<p>3 month outcomes:</p> <ul style="list-style-type: none"> • decreases in memory hours related to reduced role overload • decreases in ADL hours related to decreases in worry/strain

Table 1 (continued)

Researcher(s)	Sample Size	Description of Sample	Variables Assessed	Eligibility Criteria	Exclusionary Criteria	Findings
Gaugler et al. (2003b)	N = 400	Data from Time 1 and Time 2	Role captivity, role overload, worry/strain, depression, anger, caregiver hours, secondary caregiver hours, formal service hours, behavior problems, ADL, memory	<ol style="list-style-type: none"> 1. care recipient dementia diagnosis 2. caregiver is primary 3. no use of ADC for past 3 months 4. ≤ 8 hrs/week of other services 	All: no longer primary caregiver, care recipient deceased, caregiver not available, caregiver refused, institutionalization T: discharged from ADC C: used ADC	3 month outcomes: <ul style="list-style-type: none"> • decreases in hours spent on behavior problems • decreases in frequency of behavior problems

Primary Stressors

To date, no studies of in-home respite have assessed the impact of this service upon primary objective stressors. The results of ADC research indicate that respite does not significantly impact dementia care recipient memory problems or functional ability. In an ADCCS publication, Jarrott, Zarit, Stephens, Townsend, & Greene (2000) (N = 122) utilized a quasi-experimental design to examine the impact of respite upon care recipient cognitive impairment. These investigators found that, after three months of twice weekly ADC use, family caregivers did not report any significant change in the amount of time spent dealing with care recipient memory problems.

Similarly, findings in regard to the impact of ADC upon patient functional status have yielded disappointing, although not unexpected results. Researchers assessing changes in functional ability after ADC as assessed by care recipient report (Baumgarten, Lebel, LaPrise, LeClerc, & Quinn, 2002; N = 251) and family caregiver time estimates (Gaugler et al., 2003b; N = 400) conclude that ADC is not associated with significant change in functional ability. Other researchers, however, have reported that functional abilities decrease following ADC respite use. Leitsch et al. (2001) (N = 261) conducted a quasi-experimental study in which outcomes were compared for those participants who regularly used medical versus social models of ADC. Regardless of the model of ADC, these investigators found significant pre-post increases in caregiver reports of the number of functional disabilities in care recipients after three months of ADC use. Given that these studies were conducted with samples composed entirely (Gaugler et al., 2003b; Leitsch et al., 2001) or partially (Baumgarten et al., 2002) of care recipients suffering from progressive dementias, the failure of ADC to impact this variable is an expected result.

Reports of changes in care recipient behavioral problems offer more optimistic results. Considering only those studies with sufficient statistical power to detect differences in behavior, results are split depending upon the role of the informant. Researchers who have assessed the frequency of behavioral problems via report from ADC staff in quasi-experimental (Dröes, Meiland, Schmitz, & Van Tilburg, 2004, N = 112) and single-group cohort studies (Woodhead, Zarit, Braungart, Rovine, & Femia, 2005, N = 94), have failed to find significant effects of ADC in reducing care recipient problem behaviors. In contrast, conclusions drawn by investigators utilizing ADCCS data, in which measures of behavioral problems are based upon caregiver report, indicate a significant reduction in caregiver time spent dealing with care recipient behavioral problems (Gaugler et al., 2003b; Jarrott, et al., 2000; N = 122) and a reduction in the total number of care recipient behavioral problems (Gaugler et al., 2003b). The findings in regard to care recipient behavioral problems thus differ by informant. The primary stressor of care recipient behavioral problems is rated lower by caregivers because respite allows them to spend less direct time dealing with these concerns. Because the behavioral problems are still present and also addressed by ADC staff, their increased exposure to this primary stressor results in little change in their perception of this variable.

The primary subjective stressors of family caregiver role captivity (i.e., feelings of being trapped within the caregiver role) and role overload (i.e., fatigue with duties and the extent to which duties seem unceasing) have been assessed predominantly within the context of ADCCS studies. The results of ADCCS research in which participants, on average, used greater than one day of ADC per week for at least three months have demonstrated that although caregivers continue to feel restricted within their roles (Zarit et al., 1998), ADC results in significant reductions in caregivers' feelings of overload (Leitsch et al., 2001; Zarit et al., 1998).

Conclusions regarding family caregiver worry/strain differ, although quality studies yield promising findings. Pot et al. (2005) (N = 264) concluded in their correlational study that the onset of in-home respite was associated with increased levels of worry/strain; however, the correlational nature of this study precludes causal statements. Researchers analyzing ADCCS data indicate that caregivers report significant reductions in worry/strain symptoms (i.e., persistent physical and psychological tension) following an adequate dosage of ADC (Leitsch et al., 2001; Zarit et al., 1998).

Outcomes

An area that is lacking in research attention in regard to respite outcomes is delay of institutionalization. No researchers have examined this variable in regard to in-home respite, and those assessing this variable in regard to ADC report ambiguous findings. Both research groups that have assessed this variable in regard to ADC (Eagle et al., 1991, N = 113; Zank & Schacke, 2002, N = 148) failed to find an effect of respite in delaying nursing home placement; however this variable was assessed only by comparing rates of institutionalization in treatment and control groups at post-treatment. Differences in length of time until institutionalization were not assessed and important care recipient variables impacting nursing home placement (i.e., behavioral problems, functional disabilities, cognitive impairment) were not taken into account in these analyses.

Studies that assess the impact of ADC upon family caregiver physical health rely exclusively upon caregiver subjective report. When comparing caregiver reports of perceived health at pre- and post-intervention, researchers failed to find any significant change (Gottlieb & Johnson, 1995; Quayhagen et al. 2000); however, these conclusions were based upon data from small sub-samples of caregivers receiving ADC (N = 58 and N = 16, respectively). Researchers

assessing family caregiver physical health via physiological measures report more optimistic findings. In an experimental study of in-home respite outcomes, Grant et al. (2003) (N = 55) examined family caregiver physiological responses to 10 days of in-home respite. At one month post-intervention, these investigators found that “vulnerable” caregivers (i.e., those who provide more than 12 hours of care per day and receive respite less than once per month) who received in-home respite services evidenced a significant decrease in epinephrine levels, relative to their non-respite receiving “vulnerable” counterparts. Replication of this promising finding will allow greater confidence in this conclusion.

Few studies have assessed the impact of ADC upon the psychological outcome of caregiver anxiety. Studies that included a small dosage of respite and small sample sizes were generally unable to find significant change in this variable (Grant et al., 2003; Quayhagen et al., 2000). Interestingly, Gottlieb and Johnson (1995) reported significant reductions in anxiety (Hopkins Symptom Checklist) in their small sample of family caregivers (N = 58), following a five-month ADC intervention.

Researchers assessing caregiver psychological outcomes generally find a decrease in negative emotions, but no concomitant increase in positivity. The conclusions of quasi-experimental studies assessing anger (Leitsch et al., 2001; Zarit et al., 1998) and hostility (Quayhagen, et al, 2000) indicate significant short-term reductions in these emotions at post-treatment. These reductions in negative states do not necessarily coincide with an increase in positive views and feelings. Even with a sufficient magnitude of treatment intervention, caregivers do not report increased positive affect (Leitsch et al., 2001; Zarit et al., 1998).

In-home respite studies have failed to demonstrate promising findings in regard to the ability of respite to reduce depressive symptoms in family caregivers. Grant et al. (2003)

(N = 55) reported that in-home respite did not significantly impact caregiver depression (Hamilton Depression Scale); however, the low magnitude of treatment (i.e., 10 days of in-home respite over the course of two weeks) indicates that the effects of in-home respite are likely underestimated. Pot et al. (2005) reported that ending in-home respite was associated with a decrease in caregiver depressive symptoms; however, the authors were careful to point out that, given the observational nature of this study, these findings do not infer causality.

Findings in regard to caregiver depression within the ADC literature offer more optimistic results that suggest respite is effective in reducing family caregiver depressive symptoms. Quasi-experimental ADCCS publications with an adequate sample size, an appropriate magnitude of treatment (i.e., using ADC twice a week for at least three months), comparison conditions without access to similar resources, and distressed family caregivers found significant reductions in depressive symptoms (CES-D), both at post-treatment (Leitsch et al., 2001; Zarit et al. 1998) and in comparison to control group counterparts (Zarit et al., 1998).

Taken as a whole, respite outcome studies offer very little interpretable data in regard to the ability of respite to delay nursing home placement. In regard to primary objective stressors, well-designed research based upon dementia caregiving dyads indicates reduced time spent addressing care recipient behavioral problems following use of respite (Gaugler et al., 2003b; Jarrott et al., 2000). In contrast, investigators generally conclude that respite does not result in improvement of dementia care recipient functional ability or memory problems (Baumgarten et al., 2002; Eagle et al., 1991; Gaugler et al., 2003b; Jarrott et al., 2000; Leitsch et al., 2001; Weissert, Wan, & Livieratos, 1980; Zank & Schacke, 2002). The data pertaining to primary subjective stressors are more promising. After using respite of an adequate dosage, caregivers report significant decreases in role overload and worry/strain (Leitsch et al., 2001; Zarit et al.,

1998). Additionally, improved psychological outcomes for caregivers have been noted in regard to anger (Leitsch et al., 2001; Quayhagen et al., 2000; Zarit et al., 1998), and particularly depression (Leitsch et al., 2001; Zarit et al., 1998).

Conceptual and Methodological Critique

The following discussion will be devoted to a review of important conceptual and methodological problems within the respite outcome literature. Issues of respite under-utilization will first be examined, followed by a discussion of problems pertaining to theory. The discussion will conclude with an examination of shortcomings related to the external validity of respite outcome studies.

Utilization

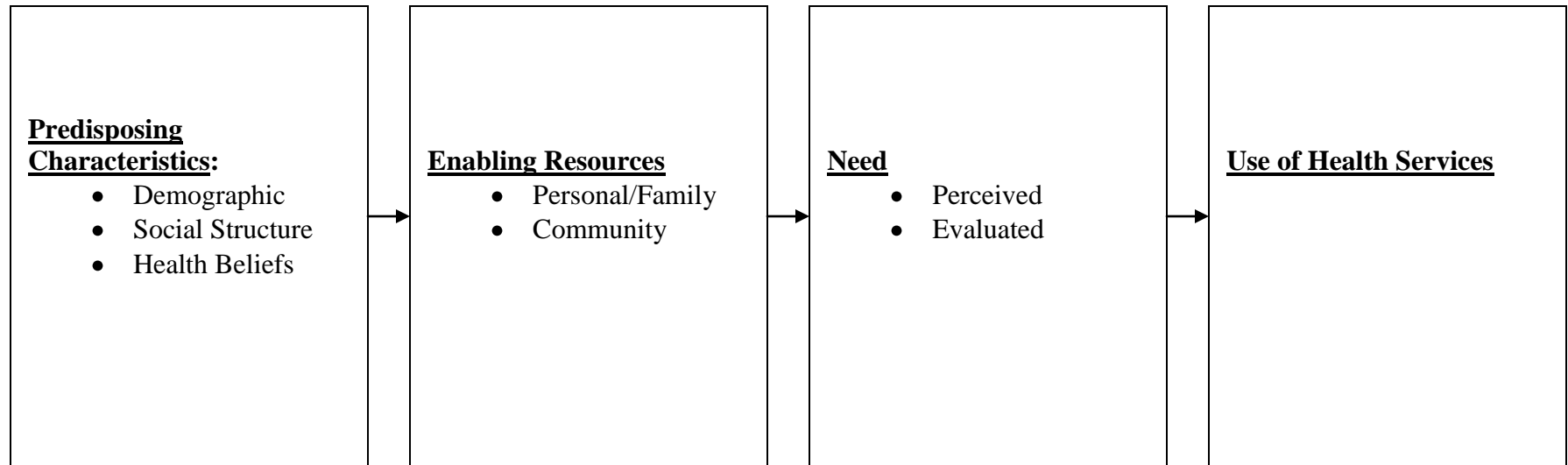
A substantial problem within the respite outcome literature is the frequency with which respite services are under-utilized. Numerous studies within this literature report low rates of respite utilization from caregivers who volunteer for treatment studies (Lawton, Brody, & Saperstein, 1989; Montgomery, 1988; Montgomery & Borgatta, 1989; Quayhagen et al., 2000; Weissert et al., 1980). The low rate of respite usage is an important practical problem. Family caregivers who could potentially benefit from respite assistance are not using services. Under-utilization is also a practical concern for agencies that provide NFCSP respite services, because caregivers' failure to use federally subsidized respite hours for which they are enrolled results in loss of agency resources.

Additionally, low respite utilization in the treatment group is a significant methodological problem in respite outcome studies, and this problem is often compounded by the fact that comparison or control groups have access to free or low-cost respite services outside of the research setting (Eagle et al., 1991; Lawton et al., 1989; Weissert et al., 1980). The potential

result of these problems is that the treatment and control groups are actually receiving respite services to a similar degree, resulting in research studies with low internal validity. Conclusions that respite is ineffective (e.g., Callahan, 1989) in producing change are misleading when results are based upon two groups who did not differ in regard to the independent variable.

Prediction of utilization. To date, very few researchers have assessed which variables predict utilization of respite services; however, the majority of publications examining this phenomenon are grounded in the Behavioral Model of Health Services Use (Andersen, 1995, Figure 2). According to this theory, service utilization is predicted by predisposing, enabling, and need variables. Predisposing variables involve demographic categories (i.e., age and gender), social structure (i.e., education, occupation, and ethnicity), and health beliefs (i.e., attitudes, values, and knowledge regarding health services) (Andersen, 1995). Enabling variables consist of constructs that represent the extent to which persons are practically able to access health care services in regard to both personal (e.g., income, health insurance) and community resources (e.g. geographic proximity of formal services). Finally, need variables can be subdivided into perceived need (i.e., a person's subjective view of his or her own health status) and evaluated need (i.e., professional judgment regarding a person's need for services). According to Andersen, the model may also include a feedback loop, wherein health utilization outcomes subsequently impact predisposing and need factors. The Behavioral Model of Health Services Use (Andersen, 1995) has proven effective in predicting variance in older adults' usage of in-home community services (i.e., in-home respite care, nursing care, therapy, and home-delivered meals); however, it is able to predict little variance in older adults' utilization of financial services (i.e., government financial assistance, utility bill assistance, and employment

Figure 2

Behavioral Model of Health Services Use (Andersen, 1995)

services) and non-home based community services (e.g., reassurance service, ADC, senior center, transportation assistance, home repair) (Calsyn & Winter, 2000).

Although the Behavioral Model (Andersen, 1995) is applicable to instances in which the older adult is autonomous and able to make health care decisions in an independent manner, it is more limited in regard to family caregiving. In the caregiving situation, it is often the family caregiver's perceptions of relevant variables that determine service utilization (Bass & Noelker, 1987); thus, applications of the Behavioral Model (Andersen, 1995) to the caregiving situation generally involve measurement of variables that are also included in the Stress Process Model of caregiving (Aneshensel et al., 1995; Pearlin et al., 1990). The demographic and social structure variables of Andersen (1995) are included within the contextual variables of the Stress Process model. Additionally, the need variables (i.e., functional impairment, cognitive impairment, and behavioral disturbance) in the Behavioral Model are synonymous with Pearlin et al.'s (1990) primary objective stressors when rated by family caregivers. Enabling factors are also included within Pearlin et al.'s (1990) contextual variables (i.e., program availability). To provide clarity, the literature regarding predictors of respite utilization will be discussed in regard to Stress Process constructs. Variables that appear in both models will be referred to in Stress Process terminology, although the Behavioral Model label will be included parenthetically.

Research findings. Studies of service utilization in regard to respite are either cross-sectional or prospective in nature. Several research groups have studied differences between caregivers who utilize any respite services versus those who do not. Researchers have identified contextual (demographic/enabling) variables that increase the likelihood of respite usage: non-spousal caregivers (Caserta, Lund, Wright, & Redburn, 1987) and older care recipients (Caserta et al., 1987).

More research attention has been devoted to the impact of primary stressors in predicting respite usage. Family caregivers who are highly burdened (Adler, Kuskowski, & Mortimer, 1995; Caserta et al., 1987; Kosloski, Montgomery, & Youngbauer, 2001) and who care for family members with high levels of the primary objective stressors (care recipient need variables) of functional impairment (Adler et al., 1995; Caserta et al., 1987; Kosloski & Montgomery, 1994; Kosloski et al., 2001; Noelker & Bass, 1989) and cognitive impairment (Adler et al., 1995) are most likely to use respite services.

Although it is clear that family caregivers who use respite services care for more impaired care recipients than those who do not use respite, very little research has been conducted to assess which variables predict the extent of respite usage in a service seeking sample. As previously mentioned, this is a critically important question from the standpoint of agencies providing NFCSP respite services. Studies in which researchers examine predictors of the extent of respite usage are rare; however, these researchers conclude that higher income (Bass & Noelker, 1987) and higher levels of cognitive and functional impairment predict more hours of respite service usage per week (Bass & Noelker, 1987; Kosloski & Montgomery, 1993).

Researchers have also assessed the extent of respite usage by examining which variables are predictive of discontinuing use of respite services. In a single-group cohort study utilizing the treatment group from the ADCCS, Zarit, Stephens, Townsend, Greene, and Leitsch (1999) (N = 245) examined factors predicting brief (i.e., less than or equal to two ADC visits per week for three consecutive months) versus sustained (i.e., two ADC visits per week for over one year) respite usage. In regard to contextual (demographic) variables, these researchers concluded that male family caregivers, spouses, and family caregivers with lower education were more likely to use respite briefly.

Researchers assessing the role of primary objective stressors (care recipient need variables) in predicting low rates of respite utilization have found consistent results. Cox (1997) (N = 228) utilized a single-group cohort design to assess respite usage (i.e., in-patient, ADC, or in-home respite) patterns in dementia caregiving dyads between baseline and six months. This researcher concluded that higher levels of care recipient cognitive impairment were predictive of dyads that stopped utilizing respite services before six months passed. Similarly, Zarit et al. (1999) reported that high levels of behavioral problems and functional impairment were predictors of brief ADC usage. Although Cox (1997) did not report a relationship between functional impairment and stopping respite usage, this researcher reported that 55% of caregivers who stopped using respite had placed their family member in residential care and 33% of stoppers reported that the care recipient was deceased.

Stress Process variables that do not overlap with the Behavioral Model of Health Services Use (Andersen, 1995) have also been assessed in regard to service utilization. The only primary subjective stressor to be assessed in regard to respite utilization is role captivity. Zarit et al. (1999) reported that higher levels of caregiver role captivity predicted brief respite usage. Data in regard to the ability of family caregiver psychological variables to predict brief utilization are contradictory. Cox (1997) concluded that caregivers who stopped using respite were significantly more anxious and depressed at baseline than were those who used respite for six months. Conversely, Zarit et al. (1999) reported that brief users had lower levels of depression and more positive affect at baseline than those who used respite for longer than one year. Zarit et al.'s (1999) conclusions are based upon groups that were more differentiated (i.e. comparing less than three months of use with over one year of use) whereas Cox's (1997) comparison was split between those who used respite for less than or more than six months. Further, Zarit et al.

(1999) specified the magnitude of usage necessary for participants to be included in data analyses, whereas Cox (1997) did not take this variable into account. Data in regard to family caregiver variables related to respite utilization are contradictory; however, the superior design of Zarit et al.'s (1999) study allows more confidence in their findings.

Overall, there are few previous studies that examine factors predicting utilization of respite services, and with few exceptions (Kosloski et al., 2001; Zarit et al., 1999), there has been little recent research interest. Studies of respite utilization almost invariably rely upon and support the Behavioral Model of Health Services Use (Andersen, 1995), although findings utilizing this model consistently reveal that variables overlapping with the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990) significantly predict respite service utilization. Researchers examining respite utilization have concluded that contextual (demographic) variables and primary objective stressors (care recipient need variables) are related to rates of service utilization. Further, researchers who examined the prediction of service usage according to Stress Process variables not present in the Behavioral Model (Cox, 1997; Zarit et al., 1999) raised interesting questions with important implications for future research.

Although the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990) conceptualizes service usage as a contextual variable rather than a variable of prediction, past research indicates that constructs from this model are predictors of prospective service use. To better understand the ability of the Stress Process Model to predict respite utilization, and for the sake of parsimony, the constructs for all hypotheses in the current study will be derived from the Stress Process Model of caregiving. Implications of findings will be discussed in regard to both conceptual models.

In sum, spousal caregivers are less likely to use respite and more likely to prematurely drop-out of respite than their non-spousal counterparts (Caserta et al., 1987; Zarit et al., 1999). Additionally, family caregivers with indicators of lower socioeconomic status (i.e., lower education and income) are more likely to use fewer hours per week or to use respite only briefly (Bass & Noelker, 1987; Zarit et al., 1999). Data in regard to primary objective stressors are more complex: high levels of care recipient functional and cognitive impairment predict those who use respite services (Adler et al., 1995; Caserta et al., 1987; Kosloski & Montgomery, 1993; Kosloski et al., 2001; Noelker & Bass, 1989), and these variables also predict increased hours of weekly service use in a respite-seeking sample (Bass & Noelker, 1987; Kosloski & Montgomery, 1993). Of those who use any respite services, however, those who subsequently drop-out prematurely are likely to have higher levels of all primary objective stressors (care recipient need variables) (Cox, 1997; Zarit et al., 1999). Thus, it appears that those who discontinue usage of respite services report significantly higher levels of primary objective stressors than those who do not. Of those who do not drop out of respite services, however, greater levels of impairment in regard to primary objective stressors predict more service usage.

Theory

As previously mentioned, a striking and problematic omission within the respite outcome literature is the lack of studies based upon theoretical grounding. It is critically important to base research on an underlying theory if it is to meaningfully contribute to the scientific literature. Without a conceptual model to explain the relationships among variables of interest, one is unable to make sense of diverse findings, understand mechanisms of change, or generalize conclusions to the outside world (Kazdin, 2003). Meaningful research stems from an underlying theory that explains the proposed mechanisms of change, identifies the variables that will be

impacted, and clarifies the expected outcome. In the words of Kazdin (2003), the goal of scientific inquiry is not simply to list findings, “but to understand how and why” (p. 127).

With few exceptions (Hooyman, Gonyea, & Montgomery, 1985; Woodhead et al., 2005; Zank & Schacke, 2002), the only respite outcome study to include a theoretical basis for mechanisms of change is the ADCCS. Researchers planning this study used the Stress Process Model of caregiving (Aneshensel, et al., 1995; Pearlin et al., 1990) to select measures and frame the questions for the study. To date, ADC researchers have provided good information in regard to *how* respite services impact caregivers (i.e., reductions in primary subjective stressors and negative psychological outcomes); however, the question of *why* respite services impact caregivers still remains to be conclusively answered.

Very little research has been conducted to explain the processes by which respite results in improvement in family caregiver psychosocial functioning. In a quasi-experimental study using ADCCS data, Gaugler et al. (2003) (N = 400) examined relationships between ADC usage and changes in time spent on primary objective stressors in explaining improvements in family caregiver variables. These researchers concluded that caregivers who used ADC and experienced reductions in time spent on memory problems reported significant reductions in role overload. Interestingly, Gaugler et al. (2003) reported that family caregivers who did not utilize ADC but still experienced reductions in functional impairment time evidenced significant reductions in levels of worry/strain. Gaugler et al.’s (2003) finding regarding family caregiver worry/strain is rather unexpected. This conclusion indicates that family caregiver time is significantly related to psychosocial functioning.

This conclusion is important in regard to understanding the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990) and applying it to respite. The variables of family

caregiver discretionary time and time to devote to household chores may be mediating or proliferating mechanisms by which the primary objective stressors impact family caregiver outcomes. Caregivers living with care recipients who exhibit primary objective stressors (i.e., care recipient functional disability, cognitive impairment, and behavioral disturbance) are forced to spend the majority of each day dealing with these issues. As a result, family caregivers have less time to devote to household chores and less discretionary time for themselves, which may subsequently result in negative psychosocial outcomes.

Although respite typically results in reductions in time spent providing direct care to the care recipient (Berry, Zarit, & Rabatin, 1991; Gaugler et al., 2003b; Jarrott et al., 2000), there are other obligatory tasks that can be completed without the care recipient present (i.e., personal/sick care, shopping, housework, cooking) (Lawton, Moss, & Duhamel, 1995). The few researchers who have examined the manner in which family caregivers spend respite time have concluded that many family caregivers report using respite to “catch up” on household tasks and duties (Berry et al., 1991; Pearson, 1988). The common finding of improved family caregiver psychosocial outcomes may be due to the fact that family caregivers are able to use respite time to attend to non-caregiving related household issues. Thus, one could propose that respite time devoted to non-care related chores is associated with caregiver depression, above and beyond variables reflecting the caregiving context, past service usage, and patient primary objective stressors.

Additionally, the time that family caregivers devote to discretionary activities (i.e. family interaction, social interaction, religious activities, reading, listening to the radio, watching television, recreation/leisure, and rest/relaxation) is also likely to be negatively impacted by the high demands of primary objective stressors. A lack of pleasant events and activities is a likely

contributor to negative psychosocial outcomes (Pearlin et al., 1997); thus, if family caregivers are able to use respite time for discretionary activities (i.e. family interaction, social interaction, religious activities, reading, listening to the radio, watching television, recreation/leisure, and rest/relaxation), one would expect to see the reductions in depressive symptoms that are found in Zarit et al. (1998). Given the regularity and longevity with which family caregivers used respite in this study (i.e., twice per week for at least three months), it is likely that caregivers were not only able catch up on tasks and duties, but also to use respite as a means of gaining recreation or leisure time. Zarit et al.'s (1998) finding of reduced depression in caregivers using ADC may indicate caregivers were able to use respite time to complete non-care related tasks and engage in discretionary activities. It may be that respite time devoted to discretionary activities is related to depression, after taking into account the effects of contextual variables, prior service usage, and primary objective stressors.

External Validity

An important concern in regard to respite research studies is the extent to which the conditions of the study are commensurate with real-world practices. An important issue in regard to external validity is the frequency with which minority participants are underrepresented in respite research (Kosloski, Montgomery, & Karner, 1999; Montgomery, 1995). Studies frequently include samples comprised almost entirely of non-minority participants; thus, many respite outcome studies only provide information in regard to the impact of this service upon non-minority caregivers.

Additionally, the literature base on respite outcomes is highly skewed toward research examining the impact of ADC services. Studies of in-patient respite prevent one from drawing substantive conclusions regarding the ability of this form of respite to impact caregiver outcomes

because investigations are all at least ten years old and suffer from methodological shortcomings (i.e., low sample size, lack of control groups, and few objective indicators of family caregiver outcomes). Given the low rates with which caregivers seek this service (Homer & Gilleard, 1994; Lawton et al., 1989; Montgomery, 1988), it is not surprising that the state of this literature is currently underdeveloped. Conversely, the dearth of research examining in-home respite is highly problematic. Although this service is the most preferred form of respite by caregivers (Montgomery, 1988; Whitlatch & Noelker, 1996), there are very few studies that examine outcomes for in-home respite. Additional quality research on in-home respite is necessary to understand respite services as they are offered and utilized within the community.

The Current Study—Hypotheses

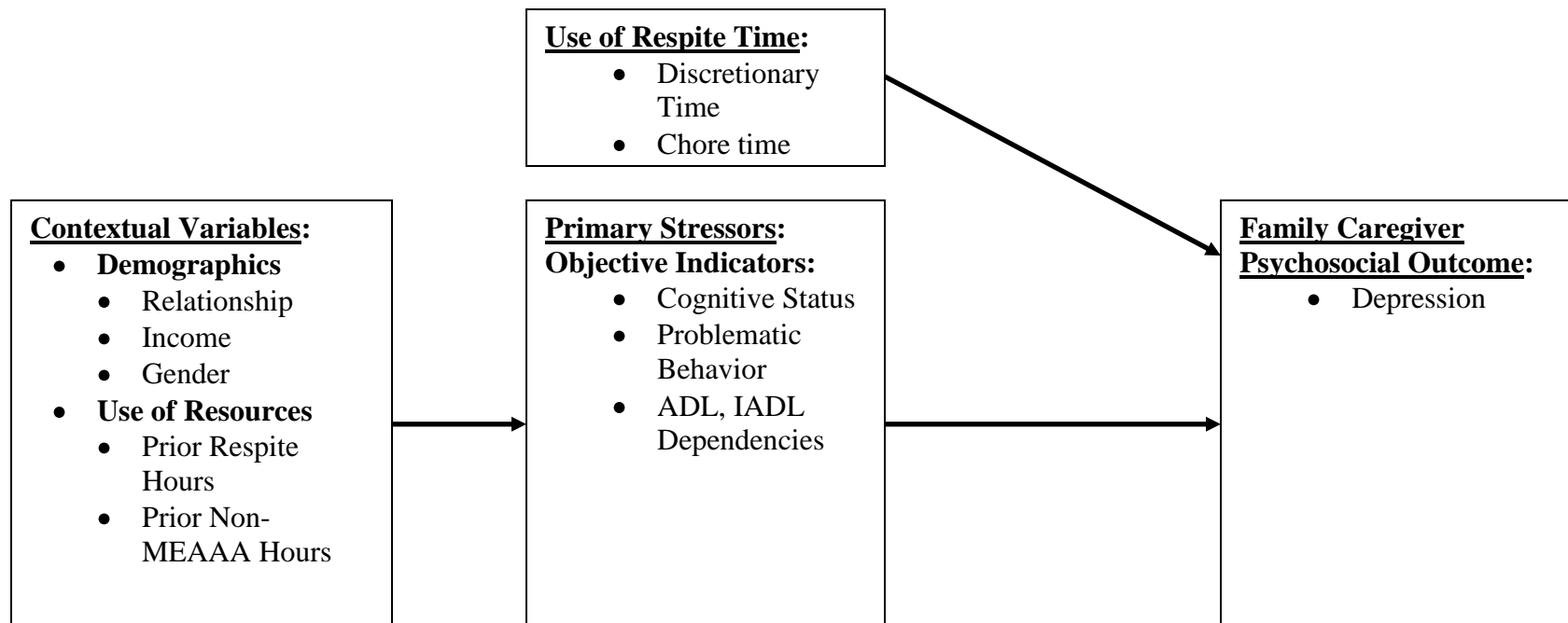
Although in-home respite services are consistently the most desired form of respite (Montgomery, 1988; Whitlatch & Noelker, 1996), there is surprisingly little research regarding this type of service. Additionally, the vast majority of previous research assessing respite outcomes has lacked any theoretical grounding, although researchers who incorporate theory invariably rely upon the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990). Results of quality ADC outcome studies from the ADCCS indicate that family caregivers who utilize a sufficient magnitude of ADC experience reduced rates of family caregiver depression. Little research has been undertaken, however, to assess the constructs related to reduced depression, and to fully understand the low rates of respite utilization by distressed caregivers.

This study extends the current respite literature by examining elements from the predominant theory in respite studies (i.e., Stress Process Model; Aneshensel et al., 1995; Pearlin et al., 1990) in regard to a representative community sample. Participants in this study are community-dwelling family caregivers currently receiving federally subsidized in-home respite.

Given the small sample size of this study, the hypotheses do not address all potential relationships in the Stress Process Model. Rather, the hypotheses are intended to examine several specific paths:

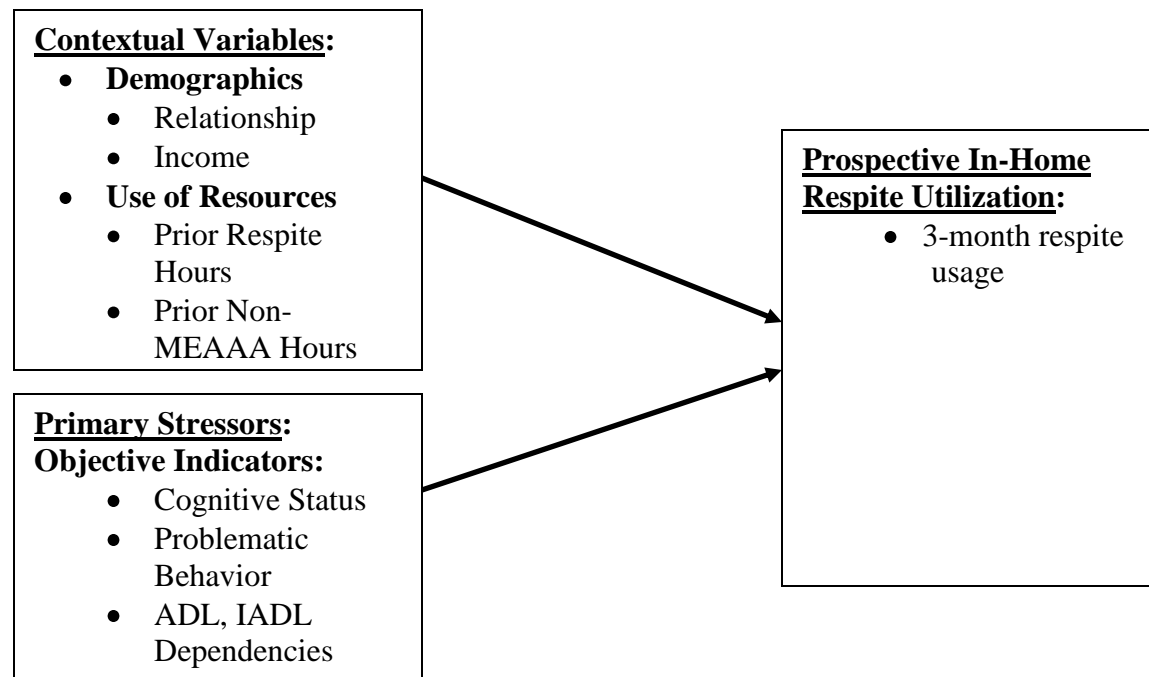
1. After controlling for contextual variables (i.e., nature of relationship, family caregiver gender, income), prior service usage (i.e., days enrolled in MEAAA in-home respite program, hours of respite services used, and hours of non-MEAAA supports within the past month), and primary objective stressors (i.e., care recipient cognitive impairment, functional impairment, and behavioral problems), family caregiver discretionary time on a typical respite day will be associated with a unique amount of variance in current caregiver depressive symptoms. (Figure 3).
2. After controlling for contextual variables (i.e., nature of relationship, family caregiver gender, income), prior service usage (i.e., days enrolled in MEAAA in-home respite program, hours of respite services used, and hours of non-MEAAA supports within the past month), and primary objective stressors (i.e., care recipient cognitive impairment, functional impairment, and behavioral problems), family caregiver chore time on a typical respite day will be associated with a unique amount of variance in current caregiver depressive symptoms. (Figure 3).
3. Contextual variables (i.e., nature of relationship and income) and primary objective stressors (i.e., functional disability, cognitive impairment, and behavioral disturbance) will significantly predict hours of in-home respite service utilization in non-discontinuing family caregivers over a three-month time period. It is hypothesized that non-spousal caregivers, higher incomes, and higher levels of primary objective stressors will predict higher rates of in-home respite utilization (Figure 4).

Figure 3

Depiction of Hypotheses 1 and 2

1. After controlling for contextual variables, prior service usage, and primary objective stressors, family caregiver discretionary time on a typical respite day will share a unique amount of variance with family caregiver depression.
2. After controlling for contextual variables, prior service usage, and primary objective stressors, family caregiver chore time on a typical respite day will share a unique amount of variance with family caregiver depression.

Figure 4

Depiction of Hypothesis 3

3. Contextual variables and primary objective stressors will significantly predict hours of in-home respite service utilization in non-discontinuing family caregivers over a three-month time period. It is hypothesized that non-spousal caregivers, higher incomes, and higher levels of primary objective stressors will predict higher rates of in-home respite utilization.

Methods

Participants

Participants were derived from a sample group of family caregivers enrolled to receive four hours per week of in-home respite services from the Mid-East Area Agency on Aging (MEAAA) through the NFCSP as of March 2007 (N = 154). The MEAAA is a government funded agency that offers services to older adults in the following Missouri counties: Franklin, Jefferson, St. Charles, and St. Louis. Eligibility criteria for the MEAAA Family Support Program state that persons providing care must be family caregivers (i.e., adult family members who perform informal caregiving tasks) who spend “the majority of their time” with the care recipient. Further, the care recipient must be at least 60 years of age and diagnosed with a cognitive impairment or require assistance with at least two activities of daily living (ADLs). Additional eligibility criteria for this study were that participants must have been enrolled in the in-home respite program for at least one month, care recipients must have resided in the community with the caregiver at the time of the telephone interview, and the caregiver could only be receiving MEAAA in-home respite for one impaired family member. The one-month criterion was added to ensure that participants were not adjusting to a new service and that typical patterns of time usage would have developed. The latter two eligibility criteria were created to ensure a homogeneous sample of persons currently serving as full-time in-home family caregivers.

Upon intake for the Family Support Program, MEAAA caseworkers collected the following information from the caregiving dyad via an in-home visit: family caregiver and care recipient age, gender, relationship, marital status, income, employment status, living arrangements, rural/urban status, race, and ethnicity. Family caregivers also reported

“significant medical problems” for themselves and the care recipient, provided responses to a 10-item measure assessing nutritional risk, and completed a 14-item measure assessing ADL and IADL impairment.

The entire sample (N = 154) of caregivers receiving in-home respite services through MEAAA was contacted via telephone and invited to participate in the research study. Of the overall group, 108 caregivers (70.13%) agreed to participate in the research study. A total of 23 caregivers were subsequently unavailable for the scheduled telephone appointment and unable or unwilling to re-schedule a later appointment time; thus, a total of 85 caregivers (55.12% of the overall sample) completed telephone interviews and mail-back packets. Data from 11 caregivers were removed from analyses for the following reasons: the caregiver did not sign and return the informed consent form (n = 1), the care recipient was deceased at the time of the telephone interview (n = 4), the care recipient resided in a skilled nursing facility at the time of the telephone interview (n = 3), the caregiver and care recipient did not cohabit (n = 1), the caregiver was receiving MEAAA services for multiple care recipients (n = 1), and the caregiver was neither a spouse nor an adult child (n = 1).

Archival record review of non-participants permitted comparison between those who did and did not participate in regard to basic demographic variables. Two-way contingency table analyses were conducted to evaluate whether participants and non-participants systematically differed in frequency for demographic categorical variables. Analyses conducted upon the 85 caregivers who completed all measures for the current study indicated that participation status and demographic variables were not significantly related. After removing the aforementioned 11 caregivers for reasons of sample selection, significant relationships between participation and ethnicity were noted. For the ethnicity variables, only the categories with Caucasian and African American caregivers

were compared, as all other categories had small expected cell frequencies (< 5) and thus violated the assumption of normality (Howell, 2002). This strategy required the removal of 1.3% of caregivers (2 of 153) and 0.7% of care recipients (1 of 151) from the contingency table analyses. Participation status (i.e. participant or non-participant) and caregiver ethnicity were found to be significantly related, Pearson $\chi^2(1, N = 151) = 4.49, p = .03$. African American caregivers were 2.00 times more likely to be in the non-participant group than the participant group (.30/.15). Similarly, participation status and patient ethnicity were also found to be significantly related, Pearson $\chi^2(1, N = 150) = 5.43, p = .02$. For care recipients, African American persons were 2.07 times more likely to be in the non-participant group than the participant group (.31/.15). Implications of these differences will be addressed within the Discussion section. For the sample of 74, proportions of participants and non-participants did not significantly differ for any other demographic category (Table 2). T-test comparison of participants versus non-participants on continuous measures revealed no significant differences between the groups in regard to prior in-home respite service usage or baseline levels of patient functional impairment (Table 3).

In regard to participants ($N = 74$), caregivers' ages ranged from 37 to 87 ($M = 69.81, SD = 9.65$). Consistent with the caregiving literature, most caregivers were female (77.00%), married (80.56%), and retired (72.22%) (see Table 4). Caregivers in this sample were predominantly Caucasian (83.78%) and highly educated, with 91.67% having completed a high school education or greater. Care recipients (Table 5) ranged in age from 60 to 102 ($M = 79.79, SD = 8.67$). They also tended to be married (70.83%), Caucasian (83.78%), and highly educated (80.56% completed high school or more). Care recipients were more evenly divided along gender lines (56.16% male and 43.84% female). As reported by caregivers, the majority of care

Table 2

Non-Participant Categorical Demographic Information (N = 80)

Variable	N	%
Reason for Non-Participation		
Refused	34	42.50
Unable to be Reached	12	15.00
Did not Keep Appointment	23	28.75
Did not Sign Consent	1	1.25
Ineligible:	10	12.50
Care Recipient is Deceased	4	
Care Recipient in Nursing Home	3	
Dyad does not Cohabitate	1	
Multiple Care Recipients	1	
“Other” Relationship	1	
Total	80	100.00
County		
St. Louis	41	51.25
St. Charles	9	11.25
Jefferson	22	27.50
Franklin	8	10.00
Total	80	100.00
Relationship		
Spouse	52	65.00
Adult Child	23	28.75
Other	5	6.25
Total	80	100.00
Caregiver Gender		
Male	17	21.25
Female	63	78.75
Total	80	100.00
Caregiver Ethnicity*		
Caucasian	55	69.62
African American	23	29.11
Hispanic	1	1.27
Native American	0	0.00
Asian	0	0.00
Hispanic	0	0.00
Bi/Multi-Racial	0	0.00
Total	79	100.00

Table 2 (continued)

Care Recipient Gender		
Male	45	56.25
Female	35	43.75
Total	80	100.00
Care Recipient Ethnicity*		
Caucasian	53	68.83
African American	24	31.17
Hispanic	0	0.00
Native American	0	0.00
Asian	0	0.00
Hispanic	0	0.00
Bi/Multi-Racial	0	0.00
Total	77	100.00

*Significant Pearson Chi Square value ($p < .05$) between participants and non-participants

Table 3

Participant and Non-Participant Continuous Demographic Information (N = 74, N = 80)

Variable	Mean	Standard Deviation	Range
Participants			
Days Enrolled in Respite Prior to Invite Letter	525.08	474.67	42.00-2194.00
Hours of Respite Received Prior to Invite Letter	144.28	111.45	0.00-412.00
Baseline CR Functional Impairment (MEAAA)	3.40	3.53	0.00-15.00
Non-Participants			
Days Enrolled in Respite Prior to Invite Letter	564.89	552.35	44.00-2704.00
Hours of Respite Received Prior to Invite Letter	132.92	116.27	0.00-388.00
Baseline CR Functional Impairment (MEAAA)	3.78	3.68	0.00-14.00

Table 4

Caregiver Demographic Information (N = 74)

Caregiver Variables	N	%
Gender		
Male	17	22.97
Female	57	77.03
Total	74	100.00
Marital Status		
Never Married	3	4.17
Married	58	80.55
Widowed	4	5.56
Divorced	5	6.94
Separated	2	2.78
Total	72	100.00
Ethnicity		
Caucasian	62	83.78
African American	11	14.86
Native American	0	0.00
Asian	0	0.00
Hispanic	0	0.00
Bi/Multi-Racial	0	0.00
Other	1	1.35
Total	74	100.00
Education		
No Formal Education	0	0.00
Less than High School	0	0.00
Some High School	6	8.33
High School Graduate	24	33.33
Vocational	9	12.50
Some College	21	29.17
College Graduate	5	6.94
Masters Degree	5	6.94
Doctoral Degree	2	2.78
Total	72	100.00
Employment		
Full-Time	1	1.39
Part-Time	2	2.78
Homemaker (no pay)	10	13.89
Retired	52	72.22
Unemployed	7	9.72
Total	72	100.00
Country		
United States	71	98.61
Canada	1	1.39
Total	72	100.00

Table 5

Care Recipient Demographic Information (N = 74)

Variable	N	%
Gender		
Male	41	56.16
Female	32	43.84
Total	73	100.00
Marital Status		
Never Married	0	0.00
Married	51	70.83
Widowed	18	25.00
Divorced	2	2.78
Separated	1	1.39
Total	72	100.00
Ethnicity		
Caucasian	62	83.78
African American	11	14.86
Native American	0	0.00
Asian	0	0.00
Hispanic	0	0.00
Bi/Multi-Racial	0	0.00
Other	1	1.35
Total	74	100.00
Education		
No Formal Education	1	1.39
Less than High School	7	9.72
Some High School	7	9.72
High School Graduate	28	38.89
Vocational	4	5.56
Some College	14	19.44
College Graduate	8	11.11
Masters Degree	3	4.17
Doctoral Degree	0	0.00
Total	72	100.00
Health		
Poor	34	47.22
Fair	21	29.17
Good	13	18.06
Very Good	4	5.56
Excellent	0	0.00
Total	72	100.00
Country		
United States	71	98.61
Canada	1	1.39
Total	72	100.00

recipients were in “fair” or “poor” health (76.39%). Care recipient diagnoses were varied (see Table 6), although most care recipients were reported to have a dementia diagnosis (34.42%) or to have experienced cardiovascular disease or incidents (29.51%). Although a large proportion of respondents did not provide diagnostic information (17.57%), independent samples t-tests revealed no significant mean differences on either caregiver CES-D scores ($t = 1.07, p = .29$) or 3-month service utilization totals ($t = .60, p = .55$) between those who did and did not provide diagnostic information.

Table 6

Care Recipient Diagnosis (N = 61)

Disease	N	%
Dementia, Unspecified	5	8.20
Alzheimer’s Disease	15	24.59
Lewy Body Dementia	1	1.64
Stroke, CVA, CV Disease, Aneurysm	18	29.51
Parkinson’s Disease	6	9.84
Diabetes	2	3.28
Neuropathy	3	4.92
Congestive Heart Failure	2	3.28
Depression	1	1.64
ALS	2	3.28
Emphysema, COPD, Pulmonary Problems	3	4.92
Cancer	2	3.28
Brain Damage	1	1.64
Total	61	100.00

All participating dyads cohabitated in the community ($M = 36.98$ years, $SD = 20.68$, range = .83 to 65 years). On average, dyads had used 157.68 hours of in-home respite ($SD = 116.07$, range = 0-480.00) and had been enrolled in the program for 559.62 days ($SD = 474.47$, range = 78.00-2215.00). Most dyads lived in St. Louis County (59.46%) and were spouses (75.00%) (Table 7). Data pertaining to household finances indicated that 59.72% of caregivers reported that paying for basic necessities was “not difficult at all” or “not very difficult”, whereas

Table 7

Caregiving Dyad Demographics (N = 74)

Variable	N	%
Did CG move in to provide care?		
Yes	18	25.00
No	54	75.00
Total	72	100.00
County		
St. Louis	44	59.46
St. Charles	10	13.51
Jefferson	12	16.22
Franklin	8	10.81
Total	74	100.00
Relationship		
Spouse	54	75.00
Adult Child	18	25.00
Total	72	100.00
Difficulty Paying for Basics		
Not Difficult at All	18	25.00
Not Very Difficult	25	34.72
Somewhat Difficult	24	33.33
Very Difficult	5	6.94
Total	72	100.00
Annual Household Income*		
Less than \$5,000	2	2.70
\$5,000 to \$9,999	2	2.70
\$10,000 to \$14,999	2	2.70
\$15,000 to \$19,999	6	8.11
\$20,000 to \$29,999	19	25.68
\$30,000 to \$39,999	24	32.43
\$40,000 to \$49,999	10	13.51
\$50,000 to \$59,999	4	5.41
\$60,000 to \$69,999	2	2.70
\$70,000 or more	3	4.05
Total	74	100.00

*10 participants did not report income, and their values were replaced by mean substitution. Independent samples t-tests indicated that those who did and did not report income had significantly different group means for 3-month service utilization ($p = .01$).

40.28% described this task as “somewhat difficult” or “very difficult”. Of those caregivers who reported income ($n = 64$), the mean and median income range was \$30,000 to \$39,999, whereas the modal income range was \$20,000 and \$29,999. The former income range was inserted for the 10 participants without self-reported income. An independent samples t-test comparing those who did and did not provide income revealed that mean 3-month respite usage was significantly higher ($t = 2.65, p = .01$) for those who did not report income ($M = 41.14, SD = 7.24$) than for those who did ($M = 32.22, SD = 19.36$). Group CES-D means did not significantly differ ($t = .14, p = .89$).

Measures

Demographic Questionnaire

Family caregiver and care recipient demographic information was obtained using a caregiver self-report questionnaire that requests information about the care recipient’s primary diagnosis and each person’s race and ethnic background, educational level, income and financial status, marital status, age, and general level of health. Each caregiver was also questioned regarding the length of caregiving (Albert, Moss, & Lawton, 1996).

Prior Non-MEAAA Service Hours

Hours of formal and informal caregiving assistance (excluding MEAAA in-home respite services) were assessed via a measure inquiring about these supports over the previous month (Gaugler et al., 2003; Gaugler et al., 2003b; Jarrott et al., 2000). Caregivers were asked to indicate whether they received help over the past month in specific areas (i.e., ADLs, IADLs, sitting with the care recipient, taking the care recipient away from home, and overnight respite). If caregivers answered in the affirmative, they were further queried regarding who provided the help (i.e., family/friends versus formal providers) and how many hours of help were provided

(Jarrott et al., 2000). Caregiver reports of formal (non-MEAAA) service and informal service hours for the past month were summed, thereby creating a score indicating the total hours of non-MEAAA assistance received over the past month. Researchers using this measure have demonstrated its ability to accurately detect a significant increase in formal service usage when comparing estimates provided prior to ADC and after three months of service usage (Jarrott et al., 2000).

The Index of ADL

The Index of ADL (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963) is a six-item measure that requires family caregivers to assess care recipients' functional abilities (i.e., bathing, dressing, toileting, transfer, continence, and feeding). For each item, the caregiver is to choose from three answer choices. Item responses are coded on a dichotomous scale with 0 indicating independence and 1 indicating some or total dependence (depending upon the item). Responses for the six items are summed, with a rating of 6 indicating dependence in all ADLs assessed. Higher scores on this measure are indicative of more functional impairment. Of the 1,001 persons participating in the validation of the measure, 96% could be classified by the index. The validity of the measure is demonstrated by the fact that in the standardization sample, the degree of assistance received was significantly related to participants' ratings on the index ($p < .002$) (Katz, et al., 1963). This scale demonstrated fair internal consistency in the current study (Cronbach's alpha of .72).

Lawton Instrumental Activities of Daily Living Scale

Care recipient ability to perform tasks necessary for independent living was assessed via the Lawton Instrumental Activities of Daily Living (IADL) Scale (Lawton & Brody, 2000). The scale consists of eight items (i.e., using the telephone, shopping, preparing food, housekeeping,

laundrying, using transportation, monitoring medication, and handling finances) that prompt the caregiver to rate the care recipient's current abilities (Desai, Grossberg, & Sheth, 2004). Each item response was coded according to a dichotomous system wherein a score of 0 is indicative of dependence and a score of 1 is indicative of some degree of independence in the activity (depending upon the item). A score of 8 would thus represent a care recipient who is able to complete all assessed IADLs with some level of independence. Higher scores indicate more independence in these instrumental activities. Researchers have demonstrated that this measure has good validity with simple Likert scoring systems (Vittengl, White, McGovern, & Morton, 2006). Further, this measure has very good inter-rater reliability between persons of varying professional backgrounds (correlations range from .90 to .95) (Hokoishi, et al., 2001). The internal consistency of this measure with the current sample is less than desired (Cronbach's alpha is .64), although this is not uncommon for behaviorally based scales.

Measure of Cognitive Impairment

The cognitive status of care recipients was assessed using a measure of cognitive impairment created by the authors of the Stress Process Model (Aneshensel, et al., 1995; Pearlin et al., 1990). The measure includes seven items that require the caregiver to rate on a six-point Likert scale (from "not at all difficult" to "can't do at all") the ability of the care recipient to remember pertinent pieces of information (i.e., recent events, day of the week, home address, words, simple instructions, home layout, and speaking sentences). Higher scores on this measure are indicative of more severe cognitive impairment. The measure has good internal reliability (Cronbach's alpha = .86 in current and past studies). Adequate convergent validity is illustrated by the correlation between this measure of cognitive impairment and the MMSE ($r = .65$) (Aneshensel, et al., 1995).

Problem Behaviors Inventory

Care recipient behavioral problems were assessed via a 30-item measure created for use in the National Medical Expenditure Survey (NMES Caregiver Supplement; National Center for Health Services Research and Health Care Technology Assessment). Bookwala and Schulz (2000) revised the original coding of this measure to require family caregivers to rate the frequency of care recipient behavioral problems on a five-point Likert scale (from “never occurred” to “occurs daily or more often”). Additionally, if caregivers reported that a behavior had ever occurred, they were then asked to rate the physical and emotional strain prompted by that behavior on a three-point Likert scale (i.e., no strain, some strain, or a lot of strain). Sum scores were then calculated to indicate the frequency of behavioral problems, the physical strain prompted by behavioral problems, and the emotional strain prompted by behavioral problems. Higher scores indicated more frequent behavioral problems, more physical strain prompted by behavioral problems, and more emotional strain prompted by behavioral problems, respectively. This scale is applicable to care recipients suffering from both physical and cognitive impairments and was created based upon the Memory and Behavior Problem Checklist (Zarit & Zarit, 1982). This measure demonstrated good internal consistency (Cronbach’s alpha = .90) in a community caregiving sample (Bookwala & Schulz, 2000) and in the current study (Cronbach’s alpha = .89).

Center for Epidemiological Studies Depression Scale (CES-D)

The CES-D (Radloff, 1977) is a 20-item self-report measure created to assess for the presence of depressive symptomatology in a community sample. Caregivers were asked to report the frequency of each depressive symptom over the past week on a 4-point Likert scale, with higher scores indicating more severe depression. Scores of 16 or higher are assumed to reflect significant symptoms of depression (Boyd, Weissman, Thompson, & Myers, 1982;

Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). The CES-D has been used frequently within the caregiving literature (Lawton et al., 1989; Zarit et al., 1998), and it has good internal reliability with respite seeking family caregiver samples (Cronbach's alpha = .90) (Gaugler et al., 2003b; Leitsch et al., 2001). The CES-D also demonstrated adequate internal consistency in the current study (Cronbach's alpha = .87). This measure has also exhibited good test-retest reliability ($r > .54$ at 6 months) in both young and older adult samples (Lewinsohn, Seeley, Roberts, & Allen, 1997).

Caregiver Use of Respite Time

Although there are numerous standardized measures created to estimate the time that caregivers devote to tasks of caregiving (e.g., Clipp & Moore, 1995; Davis et al., 1997), there are currently no prescribed instruments to assess the extent to which caregivers currently engage in non-care-related and non-obligatory activities. Pearlin et al. (1997) devised a measure of constriction in social life and leisure time; however, this measure asked caregivers to report the extent to which they have *given up* discretionary activities, rather than asking caregivers to report how they currently spend their time.

Previous methods of assessing current family caregiver time usage have consisted of diary methodology, "yesterday" interviews, and "typical day" approaches. Researchers utilizing diary methodology ask caregivers to independently record the time they spend on caregiving activities throughout the day (Jones, 1994). Although this measure allows the researcher the benefit of avoiding the pitfalls of retrospective reporting, Jones (1994) noted that caregivers reported substantially more information regarding their activities when they were questioned over the telephone than when they independently completed diaries. In contrast, the "yesterday approach" involves asking the caregiver to begin with waking yesterday and to describe each

sequential activity that he or she engaged in until going to bed (Berry et al., 1991; Moss & Lawton, 1982). Researchers have criticized the yesterday approach, however, because the data could bias results if yesterday was atypical (Gaugler et al., 2003b). Researchers from the ADCCS adopted a “typical day” approach wherein caregivers were asked to rate time spent on various caregiving tasks on a typical day. Although this type of caregiver time assessment has been used in high quality respite research studies (Gaugler et al., 2003b; Jarrott et al., 2000), the typical day approach has yet to be subject to psychometric scrutiny. The benefit of gathering data regarding this infrequently assessed variable, however, suggests that utilizing the current “best practice” measurement is appropriate.

The current study applies the “typical day” approach utilized by the ADCCS (Gaugler et al., 2003; Gaugler et al., 2003b; Jarrott et al., 2000) to measurement of family caregiver use of respite time. Based upon an amended version (Lawton et al., 1995) of Chapin’s (1974) coding system of older adult time, caregivers were asked to rate the amount of time spent in both discretionary activities and in completing non-care related chores during respite on a typical in-home respite day. Each item requires the caregiver to report the total number of minutes spent per activity on a typical respite day, the total number of minutes spent per activity outside the home on a typical respite day, and the extent to which the caregiver enjoyed the activity (from 0, indicating no enjoyment to 100, indicating complete enjoyment). Items inquiring about time spent in discretionary activities (i.e. family interaction, social interaction, religious activities, reading, listening to the radio, watching television, engaging in hobbies, resting and relaxing, and going on outings) and non-caregiving chores (i.e., taking care of your own health, running errands, housework, and cooking) were interspersed within the measure. This measure thus yields a total of 4 summary scores for each category (i.e., discretionary time and chore time):

total minutes, total minutes outside the home, the cross product for total minutes and enjoyment, and the cross-product for total minutes outside the home and enjoyment. Cross products were created by converting scores of 0 for enjoyment to 1 (so as not to eliminate the impact of time) and then multiplying minutes by enjoyment ratings. Internal consistency for the current study was lower than desirable (Cronbach's alpha = .60), although this is not unexpected for a behavioral rating scale measuring several domains of activity within a short period of time.

In-Home Respite Utilization

Family caregiver utilization of in-home respite was provided by MEAAA via a report tracking hours of in-home respite usage by month and date for each caregiver. For each participant, a 3-month service usage variable ("3-month respite usage") was calculated that reflects use of respite services in the three months immediately following his or her telephone interview. Treatment providers contracting with the agency were required to log units of service (one hour equals one unit of service) into the agency database within one month in order to be reimbursed. Given the necessity of careful documentation of this variable for payment, it is expected that this report yields accurate information regarding respite usage. Caregivers enrolled in the in-home respite reimbursement program were entitled to receive four hours per week of subsidized services.

Control Variables

The length of time in days that caregivers were enrolled in the MEAAA in-home respite program ("prior respite days") and hours of in-home respite usage prior to the telephone interview ("prior respite hours") were also assessed via a report created from the MEAAA database. For prior hours, MEAAA records provided data regarding the hours of respite that each caregiver used between July 1, 2005 and the date of the telephone interview. This variable

represents total hours of MEAAA prior service usage for 73% of the current sample ($n = 54$). The remaining caregivers ($n = 20$) entered into the respite program between May 1, 2001 and June 30, 2005. For purposes of comparing participants and non-participants, totals were also collected for these variables in regard to the date that caregivers received the initial mailing introducing the study. Date of enrollment into the in-home respite program was consistently reported by MEAAA caseworkers, as they were required to input this data into the agency database following a home visit with the client. As previously mentioned, 3-month respite usage was accurately tracked by the agency database as well.

Procedure

In March 2007, the MEAAA provided the telephone numbers and addresses of all family caregivers who had been authorized for at least one month to receive government funded in-home respite services ($N = 154$). This one-month interval was chosen to ensure that family caregivers had the opportunity to adjust to utilizing respite and had developed typical means of utilizing caregiving time during respite. Each family caregiver received a letter on MEAAA letterhead from Lisa Beatty, Director of Case Management, introducing the study and indicating that the caregiver would soon receive a telephone call from the researcher to discuss the study and incentives for participation. Within one month of receiving this mailing, family caregivers were contacted by the researcher in order to describe the nature and purpose of the current study, discuss incentives for participation (i.e., a \$20 gift card), and emphasize the fact that further receipt of MEAAA services was not contingent upon enrollment in the study.

Interested caregivers were scheduled for a telephone interview lasting approximately one-and-one half hours for the following week and reminded that their incentive for participation was contingent upon participating in the assessment and returning signed informed consent forms and

completed mail-back questionnaires. The researcher explained to the caregiver that he or she would receive a packet in the mail containing two informed consent forms, two self-addressed stamped envelopes, a mail-back packet, and response cards to be used during the interview. Participants were told to keep the informed consent forms until the telephone assessment. Each caregiver was assigned a participant number in order to protect his or her confidentiality. Data files were stored in a locked file cabinet and did not contain caregivers' identifying information. A key linking participant names and identification numbers was stored separately from the confidential files.

The researcher or a trained first-year doctoral student contacted each participant for the telephone interview at the scheduled time. The telephone conversation began with an explanation of the informed consent form along with an opportunity for caregivers to ask questions regarding this document. The examiner asked the caregiver to sign the form while on the telephone and to provide verbal consent to participate in the study. The caregiver was asked to place one signed consent form in a pre-addressed postage paid envelope and to put the envelope in the mail immediately after the telephone call. He or she was also told to keep one copy of the informed consent form for his or her records. Following discussion of the informed consent form, the examiner explained the mail-back packet and the process for returning the completed questionnaires in a pre-addressed postage paid envelope. Audiotaped telephone interviews were then conducted with study measures in the same order for all participants, with the exception of the CES-D, which was counter-balanced. The interviewers instructed each participant to consult the appropriate response card in order to view the answer choices for each measure, and the examiner wrote participant responses in assessment packets.

For both telephone and mail-back measures, each of the primary objective stressors (i.e., functional impairment, cognitive impairment, and behavioral disturbance) was assessed in regard to the care recipient's current status.¹ Administration of the measures was preceded by instructions asking family caregivers to rate care recipient status over the past one to two weeks. Family caregivers were also asked to report their current level of depressive symptoms. Those caregivers who reported significant symptoms of depression (i.e., a score of 16 or greater on the CES-D) (Boyd et al., 1982; Weissman et al., 1977) were provided with referrals to community agencies offering mental health services to caregivers.

Upon receipt of the signed informed consent form and completed mail-back packets, data from the mail-back questionnaires and telephone interviews were inputted into an SPSS data file and gift cards were mailed to participants. All data were cleaned to ensure the accuracy of data. During data cleaning, 4 items pertaining to the Measure of Caregiver Time required clarification (e.g., the amount listed was in excess of respite time or was reported as a range rather than a single number). The two interviewers reviewed the audio recordings for each instance and arrived at a consensus regarding the appropriate response. Data regarding treatment utilization was assessed prospectively across a three-month time interval. On a monthly basis, the MEAAA provided records of all in-home respite services utilized by each caregiver for each day. The 3-month respite usage variable was created by summing the hours of in-home services used by the dyad in the three months immediately following the caregiver's telephone interview. This information was coded with appropriate participant identification numbers, cleaned, and entered into SPSS for analyses. In summary, participants completed a telephone interview, returned a

¹The original data plan also involved assessing primary objective stressors and caregiver depression retrospectively to allow a proxy for longitudinal analysis of the first two hypotheses. Preliminary analyses comparing retrospective reports with actual baseline measurement, however, did not support the use of these variables in hypothesis testing.

mail-back questionnaire, and service usage was objectively assessed in hours for the three months immediately following the telephone interview (Figure 5).

Results

Power Analyses

Hypotheses 1 and 2

In order to estimate the sample size needed to achieve 0.80 power for Hypotheses 1 and 2 (i.e., caregiver discretionary time and chore time predict a unique amount of variance in family caregiver depression), it was necessary to estimate the effect sizes for these relationships from the respite literature. Very few researchers have assessed family caregiver use of respite time; thus, the best proxy for this variable was the effect size of a study that examined the interaction of respite usage (ADC) and change in primary caregiving hours. Using multiple regression, Gaugler et al. (2003) reported an R^2 of .30 for the impact of ADC and change in caregiving hours upon caregiver depression. This R^2 value converts to $f^2 = .43$. Setting alpha at .05, this study required a minimum sample of 34 to detect differences at .80 power.

Hypothesis 3

Effect sizes reported in previous research were also necessary to determine the sample size needed to assess Hypothesis 3 (i.e., contextual variables and primary objective stressors will predict 3-month respite usage). In a study examining predictors of service usage, Bass and Noelker (1987) reported that contextual variables (i.e., age, race, gender, relationship, income), levels of informal support, and care recipient need variables predicted an R^2 of .11 in respite utilization. Conversion of this value into f^2 yields a value of .12. Setting alpha to .05 (one-tailed) and power to .80, a sample size of 79 was necessary to test this hypothesis.

Figure 5

Depiction of Data Collection Timeline

March 2007 to June 2007

(3 months)

June 2007 to September 2007

Collection of Caregiver Reported Data:

- Telephone Interview:
 - CES-D
 - Index of ADL
 - MCI
 - PBI
 - Formal and Informal Service Hours
 - Measure of Caregiver Time
- Mail-Back Packet:
 - Demographic Questionnaire
 - Lawton IADL Scale

Objective Data Collection:

- 3-Month Respite Hours

Power analyses conducted to determine whether the utilization hypothesis could be assessed categorically (i.e., predicting those in the “under-utilizer” group) revealed a larger necessary sample size than was possible to collect for this study. Previous research indicates that between 43% and 46% of enrolled caregivers under-utilize respite services (i.e., never use services or drop-out prematurely) (Cox, 1997; Zarit et al., 1999), and odds ratios of brief usage based upon ADLs and behavioral problems were 1.31 and 1.20, respectively (Zarit et al., 1999). According to the sample size tables created by Hsieh (1989), a sample size of 299 persons is necessary to achieve .70 power for a study with a P of 45% and an odds ratio of 1.3. Because a sample this large was not available, no categorical analyses were conducted.

Summary of Power Analyses

Of the three planned data analyses, the largest sample size necessary to achieve 80% power was a sample of 79 to test Hypothesis 3. The current sample size of 74 is sufficiently large to test Hypotheses 1 and 2 at this level; however, this sample size is lower than the estimated sample necessary to achieve an 80% likelihood of correctly identifying meaningful differences for Hypothesis 3. Given the smaller sample size, estimated power for Hypothesis 3 is .75. Results for Hypothesis 3 will be interpreted with this issue taken into consideration.

Missing Data

A prorated sum total was created for each measure such that the participant’s composite score for the measure was equal to his or her average response multiplied by the number of items on the measure. This strategy does not alter the sum for those without missing data, and for those with missing items, it allows an estimation of the composite score based upon the caregiver’s responses. In the instances in which a caregiver did not provide data for 15% or more of the items on a particular measure, the group mean was inserted for his or her composite

score. This mean insertion approach restricts the variability of scores for a particular measure, but it is conservative in that no guesswork is required and it does not alter the group mean for each measure (Tabachnick & Fidell, 2001). Mean insertion based upon missing item-level data was infrequent and occurred in less than 5% of cases.

Hypothesis 1

Data Plan

Multiple regression was used to evaluate Hypothesis 1, that family caregiver minutes of discretionary time on a typical respite day (“discretionary time”) is associated with a unique amount of variance in caregiver depression after controlling for contextual variables, prior service usage, and primary objective stressors (i.e., care recipient functional impairment, cognitive impairment, and behavioral problems). The criterion variable for this analysis was caregiver current CES-D scores.

Assumptions of Hierarchical Multiple Regression

The distribution for each variable utilized in Hypotheses 1 and 2 was examined for normality. Four variables had skew or kurtosis levels greater than 1.00: Days Enrolled in Respite, Prior Non-MEAAA Hours, discretionary time, and CES-D scores. In each case, a square root transformation resulted in a normal distribution for the variable (Table 8).

Mahalanobis Distance was calculated for Hypotheses 1 and 2 and revealed no significant multivariate outliers.

Examination of correlation matrices for variables pertaining to Hypotheses 1 and 2 (Table 9) indicated concerns regarding multicollinearity in the planned analyses. First, the variables of Days Enrolled in Respite and Prior Respite Hours were significantly correlated ($r = .68, p < .01$). Because Prior Respite Hours is more representative of services received, Days Enrolled in

Table 8

Psychometric Properties of Variables for Hypotheses 1 and 2

Variable	Mean	Standard Deviation	Range	Skew	SE of Skew	Kurtosis	SE of Kurtosis	Cronbach's Alpha
Prior Service Usage								
Prior Respite Hours	157.68	116.07	0-480.00	.46	.28	-.72	.55	
Days Enrolled Respite**	559.62	474.47	78.00-2215.00	.90	.28	.33	.55	
Prior Non-MEAAA Hours**	28.38	34.21	0-152.00	.50	.28	-.47	.55	
Primary Objective Stressors								
Index of ADL	4.22	1.58	0-6.00	-.86	.28	-.23	.55	.72
Lawton IADL Scale	1.42	1.39	0-6.00	1.02	.28	.73	.55	.64
Measure of Cognitive Impairment	14.49	9.33	0-35.00	.53	.28	-.49	.55	.86
Problem Behaviors Inventory	38.86	18.72	2.00-94.00	.74	.28	.61	.55	.89
Respite Time Variables								
Discretionary time**	288.72	275.72	0-1590.00	.05	.28	.05	.55	.60 (entire scale)
Chore time	173.96	99.98	0-540.00	.48	.28	1.07	.55	.60 (entire scale)
Dependent Variable								
CES-D**	16.75	10.50	0-55.00	-.49	.28	1.09	.55	.87

**These variables were transformed to satisfy assumptions of normality. Skew and kurtosis statistics listed are post-transformation. (Prior to transformation, one or both values was > 1)

Table 9

Correlation Matrix for Variables in Hypotheses 1 and 2

	CES-D	Caregiver Gender	Relationship	Household Income	Days Enrolled in Respite	Prior Respite Hours	Prior Non-MEAAA Hours	Index of ADL	Lawton IADL Scale	Measure of Cognitive Impairment	Frequency of Behavioral Problems	Discretionary Time	Chore Time
CES-D	1												
Caregiver Gender	-.08	1											
Relationship	.20	-.25*	1										
Household Income	.03	-.03	.28*	1									
Days Enrolled in Respite	-.30**	-.02	.17	.10	1								
Prior Respite Hours	-.27*	-.05	.08	.15	.68**	1							
Prior Non-MEAAA Hours	-.17	-.05	-.12	.16	-.04	-.03	1						
Index of ADL	.04	.01	.25*	.18	.05	.19	-.02	1					
Lawton IADL Scale	.10	-.16	-.13	-.21	.01	-.03	.02	-.47**	1				
Measure of Cognitive Impairment	-.10	.11	-.04	.13	.07	.02	.15	.41**	-.52**	1			
Frequency of Behavioral Problems	.26*	.23*	-.15	-.04	-.21*	-.25*	-.05	.02	-.16	.42**	1		
Discretionary time	-.21	.19	-.14	-.08	.09	.14	.15	.11	.03	.19	.01	1	
Chore time	-.29*	.28*	-.16	-.07	-.01	-.01	.14	-.10	.14	-.03	.12	.11	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Respite was dropped from analyses. Second, there were additional multicollinearity issues pertaining to the primary objective stressors. The Measure of Cognitive Impairment (MCI) was highly and significantly correlated with the Problem Behaviors Inventory (PBI) ($r = .42$), the Index of ADL ($r = .41$), and the Lawton IADL Scale ($r = -.52$). Additionally, the Index of ADL and the Lawton IADL Scale were also highly correlated ($r = -.47$). Because the purpose of Hypotheses 1 and 2 was to test whether overall levels of primary objective stressors were associated with caregiver depression, the two measures of functional impairment were combined into a single variable. This combination was achieved by reverse coding the Lawton IADL scores and then adding these reverse coded scores to the Index of ADL scores. These variables represent the same construct (i.e., functional impairment) and were scaled similarly (scores ranged from 0 to 8 and from 0 to 6, respectively). This strategy prevented loss of important data, and subsequent bivariate correlation analyses revealed that the combined functional impairment variable was only significantly correlated with MCI ($r = .54$, $p < .01$). Due to multicollinearity problems with multiple measures, MCI was dropped from analyses.

As previously mentioned, the self-report variable of household income had a large proportion of missing data (10 of 74 participants did not provide this information). An independent samples t-test indicated that those who did and did not provide data pertaining to income did not significantly differ in regard to group mean values of the dependent variable (family caregiver CES-D score) ($t = .14$, $p = .89$). Measures of central tendency indicated that the mean and median category of this distribution was the annual income range of \$30,000 to \$39,999. This income range was inserted for the 10 participants without self-reported income.

Data Analyses for Hypothesis 1

A hierarchical multiple regression analysis was conducted to determine if there was a significant relationship between family caregiver discretionary time on a typical respite day and current caregiver depressive symptoms, after controlling for relevant variables (Table 10). Block 1 of the regression contained contextual variables known to impact depression (caregiver gender, relationship, and household income), Block 2 contained prior service usage variables (Prior Respite Hours and Prior Non-MEAAA Hours), Block 3 contained primary objective stressors (Combined Functional Impairment and PBI), and Block 4 was comprised of the discretionary time variable.

Table 10

Hypothesis 1: The Relationship between Discretionary Time and Current Caregiver Depression (Criterion Variable)

<u>Block</u>	R ²	R ² Change	Significance of Change
1) Caregiver Gender Relationship Household Income	.04	.04	.39
2) Prior Respite Hours Prior Non-MEAAA Hours	.15	.11	.02*
3) Combined Functional Impairment Problem Behaviors Inventory	.20	.05	.15
4) Discretionary Time	.22	.02	.19

F (8, 63) = 2.26, p = .03

Results indicated that contextual variables did not account for a significant amount of variability in caregiver depression, $R^2 = .04$, $F(3, 68) = 1.01$, $p = .39$, $f^2 = .04$. Examination of the results for Block 2 indicated that after controlling for contextual variables, measures of prior service usage were significantly associated with caregiver CES-D scores, R^2 change = .11, $F(2, 66) = 4.31$, $p = .02$, $f^2 = .13$. These results indicate that higher levels of prior service usage are related to lower levels of depressive symptoms. The significant relationship noted in this block is prompted by the Prior Respite Hours variable. Supporting this conclusion is the significant bivariate correlation, $r = -.27$ ($p < .05$) of this variable with caregiver CES-D scores, as well as the correlation partialling out the effects of the other variables, $r = -.30$. Further, the standardized beta weight for this variable was the largest in the analysis ($-.30$), and this variable made a significant contribution to the prediction equation, $t = -2.58$, $p = .01$.

After controlling for the first two blocks, the third block was added to evaluate whether the measures of primary objective stressors (Combined Functional Impairment, PBI) accounted for a significant amount of variance in caregiver depression. The results of this analysis indicated that after controlling for contextual and prior service usage variables, current primary objective stressors were not significantly related to current levels of caregiver depression, R^2 change = .05, $F(2, 64) = 1.92$, $p = .15$, $f^2 = .06$.

The results of the analyses for Block 4 allow for examination of Hypothesis 1. After controlling for contextual variables, prior service usage, and primary objective stressors, caregiver discretionary time on a typical respite day was not significantly associated with current caregiver depression, R^2 change = .02, $F(1, 63) = 1.80$, $p = .19$, $f^2 = .02$. Analyses utilizing variables representing respite discretionary time outside the home or discretionary time cross-products incorporating activity enjoyment levels also did not indicate a significant relationship

with current caregiver depression levels. Given this non-significant relationship, it is necessary to fail to reject the null hypothesis for Hypothesis 1.

Hypothesis 2

Data Plan and Assumptions of Hierarchical Multiple Regression

Hierarchical multiple regression was also used to evaluate Hypothesis 2, that family caregiver non-care related chore time is significantly related to caregiver depression, after controlling for relevant variables. Statistical analysis of Hypothesis 2 was undertaken in an identical manner to Hypothesis 1. Analyses from Hypothesis 1 were re-run with minutes of respite time devoted to non-care related chores on a typical respite day (chore time) in Block 4 in place of discretionary time. Given the similarity in these analyses, the examination of assumptions of hierarchical multiple regression for Hypotheses 1 and 2 were identical except that discretionary time was replaced with chore time. As stated above, Days Enrolled in Respite, Prior Respite Hours, and CES-D scores required square root transformations to achieve normal distributions. Calculation of Mahalanobis Distance revealed no significant multivariate outliers. There were no multicollinearity problems with the variable of chore time. All remaining multicollinearity issues and resultant changes to analyses were identical to Hypothesis 1, as was the household income variable.

Data Analyses for Hypothesis 2

To examine Hypothesis 2, Block 1 contained contextual variables (family caregiver gender, relationship, household income), Block 2 included variables pertaining to prior service usage (Prior Hours, Prior Non-MEAAA Hours), Block 3 contained primary objective stressors (Combined Functional Impairment and PBI), and Block 4 contained the chore time variable. The criterion variable for these analyses was current caregiver depression (CES-D). The findings for

the first three blocks of this regression are identical to Hypothesis 1 (see Table 10, p. 67). In sum, results indicated that only the prior service usage block was significantly related to caregiver depression, R^2 change = .11, $F(2, 66) = 4.31$, $p = .02$, $f^2 = .13$.

In order to examine Hypothesis 2, that caregiver chore time is significantly related to caregiver depression, Block 4 contained the chore time variable. After controlling for contextual variables, prior service usage, and primary objective stressors, chore time was significantly related to current levels of family caregiver depression, R^2 change = .07, $F(1, 62) = 6.10$, $p = .02$, $f^2 = .08$ (Table 11). The bivariate correlation between this variable and current caregiver depression is significant, $r = -.29$ ($p < .05$) and similar to the correlation partialling out the effects of all other variables, $r = -.30$. Further, the standardized beta weight for this variable was larger than that of other variables (-.29), and this variable made a significant contribution to the prediction equation, $t = -2.02$, $p = .05$. This finding indicates that more time devoted to non-care related chores on a typical respite day is related to lower levels of family caregiver depression. Because caregiver chore time on a typical respite is significantly related to caregiver depression, it is necessary to reject the null hypothesis for Hypothesis 2.

Hypothesis 3

Data Plan

Hierarchical regression was again utilized in order to statistically examine the third hypothesis, which posits that contextual variables (i.e., nature of relationship and household income) and primary objective stressors (i.e., functional disability, cognitive impairment, and behavioral disturbance) significantly predict hours of service utilization in non-discontinuing participants over a three-month period. The dependent variable for this analysis was the sum of hours of in-home respite usage over the three months immediately following the telephone

Table 11

Hypothesis 2: The Relationship between Caregiver Chore Time and Current Caregiver Depression (Criterion Variable)

<u>Block</u>	R ²	R ² Change	Significance of Change
1) Caregiver Gender Household Income Relationship	.04	.04	.39
2) Prior Respite Hours Prior Non-MEAAA Hours	.15	.11	.02*
3) Combined Functional Impairment Problem Behaviors Inventory	.20	.05	.15
4) Chore Time	.27	.07	.02*

F (8, 62) = 2.96, p = .01

interview (3-month respite usage). The purpose of the third hypothesis was to replicate previous utilization findings and extend them to an in-home community sample. The plan for secondary analyses involved 1.) assessing whether family caregiver depression was significantly related to 3-month respite usage after controlling for relevant variables, and 2.) determining the contribution of prior service usage to the prediction of 3-month respite usage after controlling for all other variables.

Assumptions of Hierarchical Multiple Regression

The distribution for each variable utilized in Hypothesis 3 was examined for normality. As previously mentioned, the variables of Days Enrolled in Respite, Prior Non-MEAAA Hours, and CES-D scores had skew or kurtosis levels greater than 1.00; thus, square root transformations were necessary to achieve normal distributions. The distributions for all remaining variables for Hypothesis 3 were deemed normal, and thus did not require transformation (Table 12). Mahalanobis Distance was calculated and revealed no significant multivariate outliers.

Examination of the correlation matrix for Hypothesis 3 (Table 13) indicated the same concerns regarding multicollinearity as were present in Hypotheses 1 and 2. As previously discussed, Days Enrolled in Respite and Prior Respite Hours were significantly correlated ($r = .68, p < .01$); thus, Days Enrolled in Respite was dropped from analyses. Additionally, the variables representing the construct of functional impairment (Index of ADL, Lawton IADL Scale) were significantly correlated with one another ($r = -.47, p < .01$). The Index of ADL was also highly correlated with the Measure of Cognitive Impairment (MCI) ($r = .41, p < .01$), as was the Lawton IADL Scale ($r = -.52$). As in Hypotheses 1 and 2, the purpose of analyses was to

Table 12

Psychometric Properties of Variables for Hypothesis 3

Variable	Mean	Standard Deviation	Range	Skew	SE of Skew	Kurtosis	SE of Kurtosis	Cronbach's Alpha
Prior Service Usage								
Prior Respite Hours	157.68	116.07	0-480.00	.46	.28	-.72	.55	
Days Enrolled in Respite**	559.62	474.47	78.00-2215.00	.90	.28	.33	.55	
Prior Non-MEAAA Hours**	28.38	34.21	0-152.00	.50	.28	-.47	.55	
Primary Objective Stressors								
Index of ADL	4.22	1.58	0-6.00	-.86	.28	-.23	.55	.72
Lawton IADL Scale	1.42	1.39	0-6.00	1.02	.28	.73	.55	.64
Measure of Cognitive Impairment	14.49	9.33	0-35.00	.53	.28	-.49	.55	.86
Problem Behaviors Inventory	38.86	18.72	2.00-94.00	.74	.28	.61	.55	.89
Caregiver Psychological Outcomes								
CES-D**	16.75	10.50	0-55.00	-.49	.28	1.09	.55	.87
Dependent Variable								
3-month respite usage (in Hours)	33.52	18.41	0-56.00	-.89	.28	-.68	.55	

**These variables were transformed to satisfy assumptions of normality. Skew and kurtosis statistics listed are post-transformation. (Prior to transformation, one or both values was > 1).

Table 13

Correlation Matrix of Variables for Hypothesis 3

	3-Month Respite Usage	Days Enrolled in Respite	Prior Respite Hours	Prior Non-MEAAA Hours	Relationship	Household Income	Index of ADL	Lawton IADL Scale	Measure of Cognitive Impairment	Frequency of Behavioral Problems	CES-D
3-month respite usage	1										
Days Enrolled in Respite	.13	1									
Prior Respite Hours	.44**	.68**	1								
Prior Non-MEAAA Hours	.06	-.04	-.03	1							
Relationship	.00	.17	.08	-.12	1						
Household Income	.07	.10	.15	.16	.28*	1					
Index of ADL	.12	.05	.19	-.02	.25*	.18	1				
Lawton IADL Scale	.12	.01	-.03	.02	-.13	-.21	-.47**	1			
Measure of Cognitive Impairment	-.06	.07	.02	.15	-.04	.13	.41**	-.52**	1		
Frequency of Behavioral Problems	-.19	-.21*	-.25*	-.05	-.15	-.04	.02	-.15	.42**	1	
CES-D	-.03	-.30**	-.27*	-.17	.20	.03	.04	.10	-.10	.26*	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

understand the relationship between primary objective stressors, as a whole, and the criterion variable (3-month service usage). The two functional impairment variables were thus again combined into one functional impairment construct (Combined Functional Impairment) for use in Hypothesis 3. This strategy again prevented loss of important data, and subsequent bivariate correlation analyses revealed that the combined functional impairment variable was only significantly correlated with MCI ($r = .54, p < .01$). Due to this correlation and the significant relationship between MCI and the Problem Behaviors Inventory (PBI) ($r = .42, p < .01$), MCI was dropped from analyses.

A final change to the planned analyses involves the use of the household income variable. As discussed in detail in the Participants section and in Hypothesis 1, 10 of 74 participants did not provide this information. An independent samples t-test indicated that those who did not provide income data had a significantly higher group mean for 3-month service usage ($M = 41.14, SD = 7.24$) than those who did provide income information ($M = 32.33, SD = 19.36$), $t = 2.65, p = .01$. Analysis of measures of central tendency indicated that the mean and median reported categorical income value was \$30,000 to \$39,999; thus, this variable was inserted for the 10 missing values.

Data Analyses for Hypothesis 3

Primary Analyses. To examine Hypothesis 3, a hierarchical multiple regression analysis was conducted to determine if contextual variables and primary objective stressors significantly predicted the dependent variable (3-month respite usage). Block 1 of the analysis contained the contextual variables: nature of relationship (i.e., either spousal or adult child) and income. Block 2 included measures of primary objective stressors, which were assessed prior to the tracking of

respite hours: care recipient functional ability (Combined Functional Impairment) and behavioral problems (PBI).

Examination of results for Block 1 indicated that there was not a relationship between contextual variables and 3-month respite usage, R^2 change = .00, $F(2, 69) = .19$, $p = .83$. Additionally, data analyses for Block 2 indicated that there was no significant association between primary objective stressors (Combined Functional Impairment and PBI) and 3-month respite usage after controlling for contextual variables, R^2 change = .05, $F(2, 67) = 1.57$, $p = .22$, $f^2 = .05$ (Table 14). These findings indicate that there is no significant relationship between either contextual variables or primary objective stressors and 3-month respite usage; thus, it is necessary to fail to reject the null hypothesis for Hypothesis 3.

Table 14

Hypothesis 3: Prediction of 3-Month Respite Usage

<u>Block</u>	R^2	R^2 Change	Significance of Change
1) Relationship Household Income	.00	.00	.83
2) Combined Functional Impairment Frequency of Current Behavioral Problems	.05	.05	.22
3) Caregiver CES-D Score	.05	.00	.84
4) Prior Respite Hours Prior Non-MEAAA Hours	.23	.18	.00*

$F(7, 64) = 2.75$, $p = .02$

Exploratory Analyses. Given the conflicting data in prior research regarding the impact of the caregiver's psychological state on service usage (Cox, 1997; Zarit et al., 1999), an additional exploratory analysis was conducted to determine the impact of caregiver depression levels on subsequent service usage. Blocks 1 and 2 were identical to the analyses for Hypothesis 3. For this exploratory analysis, Block 3 contained caregiver depression (CES-D) at the time of the telephone interview. The criterion variable was again 3-month respite usage. The results for Blocks 1 and 2 are reported previously. After controlling for contextual variables and primary objective stressors, there was no significant relationship between caregiver depression scores (CES-D) and 3-month respite usage, R^2 change = .00, $F(1, 66) = .04$, $p = .84$. Caregiver depression levels do not appear to predict the extent of respite services used over three months.

Although prior studies have not examined the ability of past service usage to predict future respite use, this is an important variable to understand from a programmatic standpoint. To better understand the relationship between past and future respite use, a second exploratory analysis was conducted. Blocks 1 through 3 of this analysis are identical to the exploratory analysis presented above. Block 4 of this analysis contained prior service usage variables (Prior Hours and Prior Non-MEAAA Hours). Results of this analysis revealed that after controlling for contextual variables, primary objective stressors, and caregiver depression levels, prior service usage was significantly related to 3-month respite usage, R^2 change = .18, $F(2, 64) = 7.50$, $p = .00$, $f^2 = .23$ (see Table 14, p. 76).

Of all the variables in this analysis, Prior Respite Hours was most strongly related to 3-month respite usage. Supporting this conclusion is the strength of the bivariate correlation between prior hours and 3-month respite usage, $r = .44$ ($p < .01$), as well as the comparable correlation partialling out the effects of the other variables, $r = .43$. Further, the standardized

beta weight for this variable was the largest in the analysis (.46), and this variable made a significant contribution to the prediction equation, $t = 3.85$, $p = .00$. This finding indicates that higher levels of previous MEAAA respite hours were related to increased MEAAA respite hours in the three months following the telephone interview.

Discussion

This section will begin with a general summary of findings. Next, the strengths and limitations of the current research will be discussed, followed by an interpretation of research results. Implications in regard to theory and practice will also be addressed, and the discussion will conclude with suggestions for future research.

Summary of Results

Hypothesis 1

The first hypothesis posited that after controlling for Stress Process variables (Aneshensel et al., 1995; Pearlin et al., 1990) that are commonly associated with caregiver depression (contextual variables, prior service usage, and primary objective stressors), caregiver discretionary time in minutes on a typical respite day would be significantly associated with current caregiver depressive symptoms. Data analyses revealed that contextual variables (i.e., caregiver gender, relationship, and household income) related to depressive symptoms in previous studies (Butler et al., 2005; Covinsky et al., 2003; Dunkin et al., 1998; Dura et al., 1991; Pakenham, 2001; Schulz & Martire, 2004) were not associated with caregiver self-reported depression in this sample. Consistent with theorized relationships within the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990), rates of formal and informal service usage prior to the data collection were moderately associated with caregiver depressive symptoms after taking into account the effects of contextual variables. Specifically, increased hours of prior

MEAAA in-home service usage were associated with lower levels of caregiver depressive symptoms.

To assess the relationship between primary objective stressors (i.e., functional impairment and behavioral disturbances) and caregiver depression, caregivers were asked to provide current reports of patient observable functional and behavioral problems. Contrary to prior research findings (Hinrichsen & Niederehe, 1994; Pinquart & Sorenson, 2004), caregivers' current reports of primary objective stressors were not associated with their reports of their own current depressive symptoms, after controlling for contextual variables and prior service usage.

Finally, examination of the relationship between discretionary time (caregiver self-reported minutes of discretionary time during respite on a typical respite day) and the dependent variable (current depressive symptoms) indicated no association between these variables after taking into account the effects of contextual variables, prior service usage, and primary objective stressors. In summary, data analyses were not in support of Hypothesis 1. Although MEAAA reports of hours of prior service usage were associated with caregiver depression, no other constructs within this analysis were significantly related to this criterion variable.

Hypothesis 2

The second hypothesis was concerning respite time devoted to non-care related household chores on a typical day (chore time). Specifically, it was predicted that chore time would be significantly related to caregiver depression after controlling for contextual variables, prior service usage, and primary objective stressors (patient behavioral problems and functional impairment). Findings pertaining to contextual variables, service usage, and primary objective stressors were presented for Hypothesis 1. Analyses for Hypothesis 2 revealed a significant, modest relationship between chore time and current caregiver depression. After taking into

account the effects of contextual variables, prior service usage, and primary objective stressors, caregiver reports of respite time devoted to non-care related chores were modestly associated with current levels of caregiver depression. Those who reportedly spent more time on a typical respite day catching up on non-care related chores reported lower levels of depressive symptoms.

Hypothesis 3

According to Hypothesis 3, contextual variables and primary objective stressors would significantly relate to hours of MEAAA in-home respite used over the course of three months. Findings indicated, however, that neither contextual variables (i.e., relationship and income), nor primary objective stressors (i.e., patient functional impairment and behavioral problems) were related to hours of respite used in the three months subsequent to assessment.

In addition to the primary analyses conducted for Hypothesis 3, the results of prior literature suggested the appropriateness of additional exploratory analyses. First, given the division within prior literature regarding the impact of caregiver psychological functioning on service usage (Cox, 1997; Zarit et al, 1999), analyses for Hypothesis 3 were replicated with the addition of caregiver self-reported depressive symptoms (assessed prior to 3-month service usage data). After controlling for contextual variables and primary objective stressors, there was not an association between caregiver self reported depression and subsequent hours of MEAAA service usage.

Additionally, past researchers examining the prediction of respite services have conducted studies in which all caregivers begin research participation upon their initial entrance into a program. In some studies, use of other resources is assessed and controlled (Zarit et al., 1999), but in most cases, researchers did not report data on prior service usage or examine this variable as a predictor of subsequent service use. The second exploratory analysis was thus

conducted to better understand the role of prior service usage as a predictor. Results indicated that service usage prior to the study was significantly related to hours of future MEAAA in-home respite service usage. Specifically, MEAAA reports of hours of services received between July 1, 2005 and the telephone assessment were highly associated with hours of service usage in the three months subsequent to assessment. In all, the data analyses were not in support of Hypothesis 3. For this sample of in-home respite recipients, the best predictor of future MEAAA service usage was past MEAAA service usage.

Evaluation of Research Methodology

In order to appropriately interpret the aforementioned findings, it is necessary to first evaluate the methodology of the current research. This section will first summarize key study strengths. General strengths pertaining to research design and methodology are presented first, followed by hypothesis-specific strengths. Limitations of the current research are subsequently addressed, first in regard to general concerns, and then according to each hypothesis.

Strengths

The discussion of strengths will begin with aspects of the study design that are relevant to all hypotheses and address problems in prior respite literature. First, with few exceptions (Hooyman et al., 1985; Woodhead et al., 2005; Zank & Schacke, 2002; Zarit et al., 1998), the vast majority of past respite outcome literature has lacked a conceptual or theoretical grounding. Hypotheses for the current study were framed within the predominant model of family caregiver distress (Aneshensel et al., 1995; Pearlin et al., 1990), with input from another other well-established theoretical model (Andersen, 1995). Utilization of the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990) allowed for the creation of hypotheses above and beyond the basic question of effectiveness. By incorporating an understanding of theorized

constructs and processes of change, this research was able to attempt questions of “why” that can be interpreted, replicated, and built upon by those with an understanding of this prominent theory.

Additionally, assessment tools employed within this research measured Stress Process constructs (Aneshensel et al., 1995; Pearlin et al., 1990) via record review, objective service usage data, caregiver self-report via questionnaire, and caregiver report via telephone interview. The measures used were highly similar to or identical to those used in past quality research, thereby allowing replication and extension of findings. In addition, a new behaviorally based measure of caregiver non-care related time was introduced in this study.

An additional strength of this investigation is the high level of external validity. First, this research is one of very few studies to examine in-home respite services. Although in-home service is the most widely preferred form of respite (Montgomery, 1988; Whitlatch & Noelker, 1996), this modality has attracted very little research attention. The opportunity to examine relationships and make conclusions for this popular form of respite allows for a meaningful contribution to this understudied area. Additionally, participants in this study were caregivers currently enrolled in and using federally subsidized in-home respite as it is offered in four St. Louis area counties. These results are thus generalizable to the average caregiver who is currently receiving in-home respite within the community. Collaboration with an existing agency also allowed the rare opportunity to collect data pertaining to those who did not participate. An additional strength in regard to external validity is that participants and non-participants were compared on several key variables, thereby allowing any limits to external validity to be clearly presented and discussed.

Hypotheses 1 and 2. Based upon effect sizes documented in prior research, the current sample size of 74 permitted examination of Hypotheses 1 and 2 with greater than .80 power to detect meaningful differences. The primary strength of this study in regard to the first two hypotheses, however, is the examination of new constructs and relationships that are grounded in the major model of caregiver stress, the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990). To date, this is the first study to investigate the mechanisms through which respite services reduce caregiver depressive symptoms. This dissertation study was the first examination of discretionary time as a predictor of depression in a sample of family members caring for disabled older adults. Additionally, this research introduced the construct of non-care related chore time as a construct relevant to depression and worthy of conceptualization within the Stress Process Model. To assist in the examination of these novel relationships, this research also brought about the development of a behaviorally based measure of caregiver non-care related time that was based upon an existing taxonomy of older adult time (Chapin, 1974; Lawton et al., 1995), built using the “typical day approach” (the current standard for measures of caregiver time), and pilot tested and modified prior to use in the current research.

Hypothesis 3. The examination of federally subsidized in-home respite usage is also an important contributor to the existing respite literature. Low rates of respite utilization in research studies and existing community programs are a common occurrence (Lawton et al., 1989; Montgomery, 1988; Montgomery & Borgatta, 1989; Quayhagen et al., 2000; Weissert et al., 1980) that result in analytical and practical problems. Given this fact, the lack of utilization research pertaining to respite is surprising. The study of this important variable is thus a contribution to the respite literature. Additional strengths pertaining to utilization analyses include: longitudinal assessment of service usage, data pertaining to prior MEAAA and non-

MEAAA service usage, and objectively assessed data for the outcome variable (3-month service usage).

Limitations

General limitations that apply to the participants and methodology for this dissertation study will be discussed first, followed by a hypothesis-specific summary of research limitations. First, although collecting data from an existing community program allows for high external validity, there are concomitant drawbacks to internal validity. One inherent limitation in conducting this study in collaboration with an existing agency was the inability to influence the magnitude of treatment offered to participants. Despite past research indicating that respite services are optimally utilized at a rate of two days per week for a period of at least three months (Zarit et al., 1998), participants in this study were permitted to receive a maximum of four hours per week of government subsidized in-home respite services. The lower than optimal magnitude of treatment in the current study may result in an underestimation of the hypothesized relationships.

Additionally, to facilitate recruitment and increase the likelihood of participation, this study was presented to family caregivers in collaboration with MEAAA. Although MEAAA collaboration may have increased rates of participation, this relationship may have caused a bias in caregiver reporting. Out of gratitude or fear of losing services, caregivers may have reported data as they expected MEAAA would want, possibly resulting in underestimates of depression and patient problems, and skewed estimates of discretionary or chore time.

The opportunity to report findings pertaining to caregivers currently using in-home community respite is also balanced with the limitations to the generalizability of this sample. Although in-home respite is the most preferred form of this service, there are still many

caregivers who utilize alternate forms (i.e., ADC or in-patient respite), and these findings may not generalize to those caregivers. Participants in this study also represent a sub-group of caregivers who were savvy enough to locate free respite services and who were caring for sufficiently healthy care recipients to withstand a lengthy waitlist for program inclusion.

An additional and unforeseen limitation pertaining to the sample became apparent upon examination of the differences between participants and non-participants in the sample selected for the current study. Although there was not an association between racial background and participation status for the total of 85 caregivers who agreed to participate and completed all measures, there was an effect after the sample was reduced due to added eligibility criteria (i.e., the caregiver could be receiving services for only one care recipient, the caregiver must be a spouse or adult child of the care recipient, and the care recipient must have been alive and residing with the caregiver within the community at the time of the telephone interview). After removing the 11 caregiving dyads who did not meet these eligibility criteria, persons in the non-participant category were more likely to be African American than were persons in the participant category. This finding indicates an important limitation to generalizability. Results are based primarily upon data pertaining to Caucasian caregivers and care recipients; thus, caution must be exercised when interpreting these results for minority caregiving dyads. Of note, there was no statistically significant difference between participants and non-participants for any other demographic variable.

Procedurally, this research also involved an extensive data collection via record review, telephone assessment (lasting up to 1.5 hours), caregiver self-report questionnaire (estimated completion time of one hour), and \$20 gift-card incentive. An obvious benefit to this measurement strategy was the opportunity to collect a broad array of data. Assessment via

telephone allowed valid and complete measurement of critical scales, while the self-report mail-back packet permitted caregivers to answer the remainder of questions as their schedules permitted. Drawbacks of this large data collection involve the two-hour time commitment required on the part of the caregiver, and the necessary organizational skills to participate in the scheduled telephone interview and complete and return the informed consent form and mail-back questionnaires. The result of this data collection process may have been that the most overwhelmed caregivers were unable to participate. Additionally, although the gift card incentives were purposely of a moderate value, it is possible that the \$20 gift card created more incentive for caregivers of lower SES to participate.

As previously discussed, an additional limitation is the frequency with which caregivers declined to report income information (13.5%). The decision to use a conservative mean insertion method was employed, as this option would not require guesswork or change the group mean for this variable. Conversely, mean insertion likely resulted in a restricted range for this variable, thereby limiting its predictive utility.

Hypotheses 1 and 2. Because longitudinal assessment of Hypotheses 1 and 2 was impossible due to practical constraints, the most significant limitation in the current study was the cross-sectional measurement of longitudinal relationships. Correlations between measures of interest were likely artificially inflated by assessment from the same reporter (i.e., the caregiver) at the same measurement time. Additionally, although relevant variables were assessed and controlled, the non-longitudinal, non-experimental examination of the first two hypotheses precludes one from discounting the possibility of an outside confound simultaneously impacting the variables of interest. For example, family discord or an exacerbation of patient health concerns could feasibly impact both the extent of patient problems and caregiver depression.

The correlational nature of this study also indicates that alternate explanations (e.g., reverse causation) may account for relationships documented among variables of interest.

Related to the problem of cross-sectional measurement is the fact that all variables used within Hypotheses 1 and 2 were assessed via caregiver report. As a result, biasing effects may have been present. For example, the caregiver's current depressive symptoms and mood state may have impacted his or her reports of respite time usage and care recipient functioning. Although common within the caregiving literature, this lack of objective data is non-ideal. In addition, despite pilot-testing the new measure of caregiver non-care related time, this scale has not yet been subject to psychometric scrutiny; thus, important categories may have been omitted or non-optimally assessed.

Hypothesis 3. The frequency with which caregivers declined to report household income (13.5%) was discussed previously; however, this limitation has important implications for Hypothesis 3. A comparison between those who did and did not report income revealed that the two groups significantly differed in regard to mean 3-month respite usage. Those who did not report income used more services than those who provided this information. Prior research suggests that higher income is predictive of more service use (Bass & Noelker, 1987; Zarit et al., 1999); thus, it is possible that the conservative mean insertion strategy for replacing the missing income values resulted in an underestimation of household income. Underestimation of this variable would result in restricted variability in the distribution of income ranges and reduced ability to correlate with service usage.

An unexpected problem that emerged through the process of data collection was the smaller than anticipated sample size. Although an estimated minimum sample of 79 was necessary to test Hypothesis 3 based upon the results of prior research, the current study yielded

a total sample of 74. This sample size is close to the approximated minimum sample and yields .75 power to detect meaningful differences; however, this lower than optimal sample size may have negatively impacted the possibility of detecting important findings for Hypothesis 3. (The sample size well exceeded the minimum required values for Hypotheses 1 and 2).

Summary. Overall, the major strengths of the current study include conceptually grounded hypotheses, high external validity (i.e., community sample using the most popular form of respite), examination of new constructs and relationships (discretionary time and chore time), and longitudinal, objective prediction of in-home respite utilization. Important limitations to consider when interpreting the results of this study are: cross-sectional measurement, threats to internal validity (i.e., low magnitude of treatment, non-psychometrically evaluated measure of caregiver time, and possible demand characteristics), limitations to generalizability (i.e., underrepresentation of minority populations, caregivers with knowledge of community services, and caregivers with good organizational skills), a high rate of missing data for household income, and reduced power for Hypothesis 3 (.75).

Interpretation of Findings

Hypothesis 1, Significant Findings

The overall results for Hypothesis 1 were inconsistent with the prediction that respite time devoted to discretionary activities would be associated with caregiver depression. Analyses did, however, confirm the presence of one theorized relationship (Aneshensel et al., 1995; Pearlin et al., 1990) and replicate findings from quality ADC research (Leitsch et al., 2001; Zarit et al. 1998). Contrary to past in-home respite research findings (Grant et al., 2003; Pot et al., 2005), objectively assessed hours of prior MEAAA in-home respite usage were moderately related to caregiver depression levels in the current study. The relatively low magnitude of

treatment in this study (four hours per week) versus prior research (two days per week), suggests that this is a robust finding.

Although the conceptual grounding, past ADC research support, and objective, longitudinal assessment of this relationship provide evidence that this is an accurate finding, one important limitation must be taken into account. Family caregivers were informed that this dissertation study involved collaboration with MEAAA; thus, it is possible that this information biased caregiver responses. Despite the fact that caregivers were assured of the confidentiality of their individual responses, those who used the most respite services may have felt compelled to provide positive reports of their current functioning. It is also possible that the sub-group of caregivers who agreed to participate were those who derived the most benefit from respite. Those who did not find respite helpful may not have been motivated to participate.

In all, biasing effects may have been present and impacted caregiver reports of depression. Also, without additional research, it is impossible to know whether this finding extends to those who did not participate in this study. Given the measurement strengths, replication of prior quality ADC research, and medium sized effect with a lower magnitude of service usage, it is fair to conclude that respite reduces caregivers' perceptions of their depressive symptoms.

Hypothesis 1, Non-Significant Findings

Contextual variables. For Hypothesis 1, several relationships were inconsistent with the hypothesis and the conceptual model. First, contrary to prior research (Butler et al., 2005; Covinsky et al., 2003; Dunkin et al., 1998; Dura et al., 1991; Pakenham, 2001; Schulz & Martire, 2004), there was no significant relationship between dyad contextual variables (i.e., gender, relationship, and income) and caregiver depression. The variables of gender and relationship

were assessed via self-report and confirmed through file review at MEAAA; thus, one can conclude that these basic demographic variables were validly assessed. Due to high rates of missing data (13.5%), the income variable was less absolute, although the results of t-tests revealed that those who did and did not provide income data did not report significantly different mean depression scores. The conservative mean insertion method of replacing missing data possibly resulted in reduced variability in income, which may have negatively impacted the predictive utility of this variable.

Examination of prior studies documenting a linkage between contextual variables and caregiver psychosocial outcomes yields important differences that can be profitably addressed in future research. First, several researchers concluded that female caregivers are more likely to report psychological distress than their male counterparts (Bookwala & Schulz, 2000; Dunkin et al., 1998; Pakenham, 2001; Schulz & Martire, 2004); however, these studies had important differences from the current research in regard to patient diagnoses (Dunkin et al., 1998; Pakenham, 2001; Schulz & Martire, 2004), psychological constructs (Dunkin et al., 1998), and sample demographic make-up (Pakenham, 2001; Bookwala & Schulz, 2000). Second, past research on the dyad relationship variable using the same measure of depression as the current study (CES-D) indicated that spousal caregivers were more likely to report depressive symptoms than adult children. This research was conducted with caregiving dyads of unspecified diagnoses, however, and with a sample comprised of 50% adult child caregivers (twice the proportion of the current study) (Butler et al., 2005). Finally, in regard to income, past researchers using a similar measure of income (self-report in \$10,000 increments) found that caregivers with lower income reported higher levels of depression (Covinsky et al., 2003; Dura et al., 1991). These findings were based upon studies that differed from the current research in

regard to sample demographic make-up (Dura et al., 1991), care recipient diagnoses, and measures of depressive symptoms (Covinsky et al., 2003; Dura et al., 1991).

Contrary to past findings, gender, relationship, and income were not associated with caregiver depressive symptoms for the current sample. Given the confidence with which gender and relationship were assessed, one can conclude that these variables were not related to depression in the current sample. Perhaps these contextual variables are less effective in predicting depression in a respite-utilizing mixed diagnostic community sample. Although there was no significant difference in caregiver depression scores between those who did and did not provide income information, the high rate of missing data and conservative mean insertion method of replacing income may have negatively impacted the ability of this variable to correlate with depression. Future researchers can assist in clarifying this finding by replicating these analyses with objective income data and a similar sample.

Primary objective stressors. The second finding that was inconsistent with Pearlin et al.'s (1990) conceptualization of the Stress Process is the non-significant relationship between current primary objective stressors and caregiver depressive symptoms. Past literature has documented a relationship between primary objective stressors and depression using similar measures (Hinrichsen & Niederehe, 1994; Pearlin, 1990; Pinquart & Sorenson, 2004); however, the cross-sectional nature of the measurement of patient problems and caregiver depression was problematic in this study. Caregivers' current depressive symptoms may have colored their perceptions of the care recipients' level of functioning. Even with an inflated correlation due to measurement at the same time-point by the same informant, the primary objective stressors were not significantly related to caregiver depression. These findings are counter to theory and prior research, and it is of note that data were collected in a sample receiving resources. It is thus

appropriate to defer to common findings in the literature that primary objective stressors are related to family caregiver depression. A helpful avenue for future research would be to longitudinally assess this relationship in a mixed diagnostic community sample prior to the start of respite and subsequently while caregivers are receiving respite services.

Discretionary time. Despite theoretical grounding and adequate statistical power to detect differences, family caregiver discretionary time was not significantly associated with caregiver depression in this sample. As addressed previously, although the measure used for this study was admittedly lacking in psychometric data, it was constructed using an existing taxonomy of older adult time (Chapin, 1974; Lawton et al., 1995), created based upon the “typical day approach” (the current standard for measures of caregiver time), and pilot tested prior to use in the current study.

In addition to the aforementioned strengths, there are several issues that suggest future research will be necessary to definitively confirm or disconfirm the apparent lack of relationship between discretionary time and depressive symptoms. First, past researchers have documented a significant relationship between leisure time and depression in a caregiving sample (Pearlin et al., 1997). Additionally, Gaugler et al. (2003) found that less time devoted to patient care, rather than respite use per se, was associated with improved caregiver psychosocial functioning. These findings would seem to suggest that recreation time away from patient care would result in decreased depressive symptoms for caregivers. It is noteworthy, however, that these studies differed from the current research in regard to research design and patient diagnoses.

A possible explanation for the lack of relationship between caregiver discretionary time and depression is social desirability. Because caregivers were aware that this study was in collaboration with MEAAA, they may have felt obligated to report effective use of respite time

to the agency and thus downplayed their recreational pursuits, or conversely, felt the need to report enjoyment of the time and over-reported discretionary activities. There could also be a floor effect of discretionary time for the current sample. It is safe to assume that caregivers generally have less time than the average person for discretionary pursuits; thus, this construct could be expected to have a low mean and little variability in a caregiving sample. Perhaps depressed caregivers really cannot spend much less time in pleasant events than the average caregiver. Another proposed explanation for this finding is that there may have been a ceiling effect of respite time. Caregivers in this sample received only four hours of respite per week. Caregivers may prioritize important task-related items to be addressed first during respite, resulting in little opportunity for discretionary pursuits. Of course, the cross-sectional nature of assessment indicates that longitudinal assessment of these concepts is necessary to draw firm conclusions.

In sum, despite theoretical grounding, past research support, and sufficient statistical power to find meaningful differences, the following constructs in Hypothesis 1 did not demonstrate the predicted relationships with caregiver depression: contextual variables, primary objective stressors, and discretionary time. Although findings are inconsistent with prior research on contextual variables, this study had important differences from previous research in regard to sample demographic make-up, access to community services, patient diagnoses, and measures of caregiver depressive symptoms. Additionally, the non-significant findings pertaining to the primary objective stressors were likely related to the cross-sectional measurement of these variables in a sample currently receiving respite services. Finally, the lack of relationship between discretionary time and depression could be due to social desirability, floor effects of discretionary time, ceiling effects of respite time, or cross-sectional measurement.

Additional research examining these hypotheses longitudinally and objectively with a higher magnitude of treatment will assist in understanding these relationships.

Hypothesis 2, Significant Finding

Because analyses for Hypotheses 1 and 2 were identical with the exception of the respite time variables, the findings pertaining to contextual variables, prior service usage, and primary objective stressors are identical to Hypothesis 1. As a result, only the findings in regard to caregiver chore time will be discussed within this section.

As hypothesized, caregiver non-care related chore time was modestly related to self-reported depressive symptoms, after controlling for the effects of contextual variables, prior service usage, and primary objective stressors. The strengths and weaknesses of the procedures and methods for testing this hypothesis are consistent with the discussion of Hypothesis 1. As with discretionary time, it is possible that social desirability may have impacted caregiver reports of chore time. Because caregivers wanted to demonstrate to MEAAA that they were using time effectively, they may have over- or underreported their use of chore time. Further, they may have underreported their current depressive symptoms to illustrate the helpfulness provided by MEAAA respite.

This relationship was assessed using adequate statistical power and best practice methods of measuring caregiver time. Despite these strengths, given the newness of this measure and the drawbacks of cross-sectional measurement, future longitudinal research will be necessary to test the replicability of this finding. Future research could also examine the veracity of possible alternate conceptualizations for the relationship between chore time and depression. For example, it may be that the relationship between chore time and depression is reciprocal. Those who use respite time to complete chores may have fewer depressive symptoms, and thus, more

energy to complete chores, in addition to care-related tasks. Depressed caregivers, on the other hand, may have less energy and motivation. As a result, they devote time to tasks they have no choice but to complete, and feel distressed and guilty about outstanding non-care related chores, resulting in further depressive symptoms.

In sum, findings are consistent with the hypothesis that caregiver chore time is significantly related to current caregiver depressive symptoms, after controlling for relevant variables. These results indicate that chore time is an important construct to understand within the Stress Process conceptualization of caregiving (Aneshensel et al., 1995; Pearlin et al., 1990). Additional longitudinal and objectively measured research is needed to better understand the relationship between this variable and other Stress Process constructs. Future researchers can investigate whether chore time mediates or proliferates the relationship between primary objective stressors and caregiver depression in a non-respite seeking sample. Other areas for future research involve empirically examining the aforementioned reciprocal relationship between chore time and depression or investigating the associations between the chore time construct and other variables within the Stress Process model. Recommended research methodology is later addressed in more detail.

Hypothesis 3, Significant Finding

The results of an exploratory analysis examining the relationship between past service usage and hours of respite used over three months indicated a significant and moderately sized association between these variables after controlling for contextual variables, primary objective stressors, and caregiver depression. The longitudinal, objective measurement of past and prospective service usage and medium-sized magnitude of this relationship indicate that prior in-home respite usage is an important predictor of service usage over the following three months.

Hypothesis 3, Non-Significant Findings

Contextual variables. Contrary to prior respite utilization research reporting medium sized effects (Caserta et al., 1987; Bass & Noelker, 1987; Zarit et al., 1999) and the theorized relationships within the predominant model of service utilization (Andersen, 1995), contextual variables in this sample (relationship and income) were not significantly related to prospective service usage. Notably, there is an important limitation to address in regard to the income variable. As discussed previously, 10 of 74 (13.5%) caregivers did not report income.

Comparison of those who did and did not provide income information revealed that those who did not report income had significantly higher mean 3-month service usage ($M = 41.14$ hours) than those who did report income ($M = 32.33$ hours). Past research findings indicating that higher SES was related to more service use (Bass & Noelker, 1987; Zarit et al., 1999) may suggest that those who declined to provide this information had higher incomes than those who did provide data for this variable. If this proposition is accurate, then the conservative mean insertion method of replacing the missing values may have artificially restricted the range of income responses and limited the ability of this variable to predict service usage.

Past research studies evidencing a predictive relationship between contextual variables and service usage contain important differences from the current study that suggest implications for future research. First, the finding that spousal caregivers were more prone to use respite is based upon past research examining ADC or unspecified respite (Caserta et al., 1987; Zarit et al., 1999), assessing service usage dichotomously (Caserta et al., 1987; Zarit et al., 1999), employing a caregiver self-report measure of utilization (Caserta et al., 1987), and using a higher magnitude of treatment (Zarit et al., 1999). Data pertaining to income as a predictor of service usage were based upon studies that both offered a large magnitude of treatment (Bass & Noelker, 1987; Zarit

et al., 1999), although they differed in the type of respite services offered (in-home versus ADC), the means of collecting of utilization data (self-report versus objective data), and the definition of service usage (hours of service usage within a discrete time period versus dichotomous measurement).

In sum, the lack of association between dyad relationship and service usage in this sample indicates that subsequent research may assist in better understanding the nuanced association between relationship and service use for varying caregiver populations. Because the income variable was problematic in this study, and prior research was based upon studies with diverse characteristics in regard to respite type and measurement of the dependent variable, it is premature to conclude that income is not a predictor of service usage for caregivers currently using in-home respite. Additional research measuring income objectively is needed to definitively address this relationship.

Primary objective stressors. A second result inconsistent with Hypothesis 3 is the finding that primary objective stressors did not predict subsequent hours of in-home respite over the following three months. The hypothesized relationship was consistent with Andersen's Behavioral Model of Health Services Use (1995) and the few studies examining the relationship between primary objective stressors and the extent of respite usage (Bass & Noelker, 1987; Kosloski & Montgomery, 1993).

The ceiling effect of service usage magnitude likely impacted the findings. Regardless of their situation, caregivers could use a maximum of four hours of services per week. It may be that studies offering unlimited weekly service usage would be more likely to detect a significant relationship between patient problems and service use. In addition, prior research studies contain important methodological differences from the current research that would benefit from future

empirical follow-up. Like the current study, Bass and Noelker (1987) examined the extent of in-home service usage in a mixed diagnostic sample. Participants in Bass and Noelker's (1987) study, however, received an average of seven hours of service usage per week (compared to four in the current study), and primary objective stressors were assessed via a non-standardized assessment of patient problems (number of chronic health conditions in the care recipient, and the presence or absence bladder/bowel continence, full or partial paralysis, and a professional diagnosis of memory impairment). Consistent with the current study, Kosloski and Montgomery (1993) examined an existing program offering federally subsidized respite with a sample of similar demographic make-up. Participants in that study, however, were dementia family caregivers using either in-home or ADC respite, and utilization was assessed via a composite measure of caregiver self-report and information from "available" agency records.

Overall, there is very little prior literature examining prediction of respite usage, and it is varied in regard to magnitude of usage, measurement of utilization and primary objective stressors, diagnostic make-up of care recipients, and type of respite examined. Additional quality research using clearly defined samples, objective measurement of usage, and a larger magnitude of respite is needed to definitively address this issue.

Caregiver depression. A final non-significant result for Hypothesis 3 was for the exploratory analysis conducted to better understand the impact of the caregiver's psychological state in predicting in-home respite usage. This analysis was exploratory due to the lack of research examining this relationship with continuous utilization data, and inconsistent findings with those assessing utilization categorically with dementia caregivers (Cox, 1997; Zarit, 1999). Results of this analysis indicated no association between caregiver depressive symptoms and

subsequent service usage. Replication of this finding with continuous, objectively assessed data and a higher magnitude of service usage would allow replication and extension of this result.

Implications

The theoretical implications of these research findings will be discussed in regard to each hypothesis. In addition, this section will also address the practical implications suggested by the data from the current research study.

Theoretical Implications

Hypothesis 1. The Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990) was the basis for the examination of constructs and their interrelationships in the current study (see Figure 1, p. 13). As previously mentioned, this model posits that contextual variables, primary stressors, and secondary stressors interact to impact dementia family caregiver physical and psychological outcomes. The results of analyses for Hypothesis 1 support Pearlin et al.'s (1990) conceptualization that use of community services is related to caregiver depression. This finding suggests that this relationship extends to mixed diagnostic caregivers currently receiving in-home respite.

The results of the current study, however, do not support the theorized relationships between contextual variables, primary objective stressors, and depression (Pearlin et al., 1990). All demographic contextual variables assessed (caregiver gender, relationship, and income) and primary objective stressors (PBI, combined functional impairment) were not associated with caregiver self-reported depressive symptoms. The lack of association in these areas may indicate that these variables are not strong predictors of depression for the current sample. Alternately, the lack of association between patient problems and depression in this respite-utilizing sample may indicate that respite services impact and change this relationship. Respite may be a

moderator between patient problems and caregiver depression: those who use respite do not evidence this association, whereas those without access to respite demonstrate a relationship between primary objective stressors and depression. Additional non-cross sectional research is necessary to definitively address this issue.

Analyses for Hypothesis 1 also tested whether family caregiver discretionary time on a typical respite day was related to caregiver self-reported depressive symptoms. The Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990) introduced the variable of restriction in social life and recreation as an important construct to assess, and conceptualized this variable as a secondary stressor (i.e., a stressor that is the product of a primary stressor). Pearlin et al. (1997) documented a relationship between constriction in social/leisure time and increased depression in a group of AIDS caregivers. The prior conceptualization of discretionary time, however, was based upon assessment of activities in which the caregiver was *no longer* engaged (Pearlin et al., 1990; Pearlin et al., 1997). There has not been any research measuring discretionary time in regard to current activities. The finding that discretionary time used during respite is unrelated to depression indicates that recreation time may not be a pertinent Stress Process (Aneshensel et al., 1995; Pearlin et al., 1990) variable for mixed diagnostic community family caregivers. It may also be that discretionary time is predictive of other caregiver outcomes or holds important relationships with other constructs within this model. Future research is necessary to evaluate these issues further.

Hypothesis 2. With the exception of analyses related to chore time, the implications for all analyses related to Hypothesis 2 were addressed within the last section. Interestingly, caregivers' non care-related household responsibilities are not accounted for within the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990). The current research thus

contributes to the understanding of this model by highlighting the importance of non-care related chores. After controlling for variables that are related to caregiver depression in theory (Aneshensel et al., 1995; Pearlin et al., 1990) and past research, chore time was modestly associated with caregiver's self-reported depressive symptoms. Minutes of chore time on a typical respite day and depressive symptoms were inversely related. This finding indicates that the examination of the relationships between existing Stress Process constructs and the chore time variable is an important area of future study.

Hypothesis 3. Regarding Hypothesis 3, the results of past utilization literature indicate that dyad relationship, household income, and care recipient functional impairment and behavioral concerns are predictive of respite usage (Caserta et al., 1987; Bass & Noelker, 1987; Zarit et al., 1999). These variables are conceptualized in the predominant model of family caregiver stress (Stress Process Model, Aneshensel et al., 1995; Pearlin et al., 1990) and the prominent model of service utilization (Behavioral Model of Health Services Use, Andersen, 1995). Interestingly, the Stress Process Model conceptualizes service usage as a predictor variable, whereas the Behavioral Model conceptualizes this construct as an outcome. This duality is representative of the cyclical and complex relationships between the constructs of interest. Findings from the prior literature are consistent with Andersen's model of healthcare utilization, although constructs in the current study were conceptualized in Stress Process terminology to determine the predictive relationships present within that model.

Results indicated that prior hours of service usage were predictive of subsequent service usage. Although this relationship was not addressed in prior studies or models, this relationship makes intuitive sense: past behavior predicts future behavior. Interestingly, the results of analyses for Hypothesis 3 were inconsistent with past research and the predominant model of

service utilization (Andersen, 1995). Contextual variables, primary objective stressors, and caregiver depression were not predictive of the extent of service usage for this group. This finding may indicate that Andersen's (1995) means of conceptualizing predictors of service usage requires re-examination for a family caregiving sample using in-home respite.

The Stress Process (Aneshensel et al., 1995; Pearlin, 1990) conceptualization of service usage as a predictor variable indicates another alternative. According to this model, service usage impacts primary objective stressors and depression. The finding in the current study that past MEAAA service usage is associated with caregiver depression confirms this view. It is possible that past service usage in the current sample impacted and changed caregiver reports of primary objective stressors and depressive symptoms, thereby making these amended variables less able to predict subsequent service usage. The few studies that have examined service utilization have either predicted this variable exclusively from baseline data or failed to consider the impact of past service usage. Future researchers could profitably examine whether predictors of the extent of initial service usage and ongoing service use differ.

Practical Implications

This study replicated the finding in the ADC literature that use of respite services results in reduced reports of caregiver depression and extended this finding to in-home respite services. The results of the current study indicate that government subsidized respite services of a modest magnitude have the intended effect of reducing caregiver distress. Because caregiver status is more predictive of nursing home placement than patient variables (Dunkin et al., 1998), this finding suggests that widespread availability of respite services may ultimately impact rates of institutionalization and costs to Medicaid. Of course, additional research is necessary to further document the linkage between caregiver psychosocial functioning and institutionalization. At a

community level, it is important for clinicians and those providing services to depressed caregivers to know of the availability of respite services and their usefulness in impacting caregiver psychosocial variables.

At a practical level, many persons involved in the provision of respite care assume that the opportunity for the caregiver to take a break from responsibilities is the “active ingredient” in reducing caregiver depression. The results of the current study indicate that this is not the case: caregiver discretionary time is not related to depression, whereas increased time devoted to non-care related chores is modestly associated with lower levels of depressive symptoms. This information is important for case workers and respite providers to know when counseling caregivers either formally or informally about how best to use respite time.

Finally, the prediction of respite usage is very important to understand from a programmatic standpoint because federal monies allocated to under-utilizing caregivers are lost. For this sample, prior hours of MEAAA respite predicted the total amount of respite used over the next three months. Contrary to theory and prior research, however, no other variables were significantly associated with service usage in this sample. These findings indicate that when planning future expenditures for service usage, caseworkers should examine client case histories to understand their extent of service usage in the past. Unfortunately, the inability of contextual variables, primary objective stressors, and caregiver depression to predict service usage in this sample does not allow for suggestions to be made pertaining to screening criteria. Although past research can inform this issue, additional research with in-home respite is needed to better understand predictors of respite usage.

Future Directions

This section is focused upon suggestions for future research pertaining to in-home respite and the Stress Process Model (Aneshensel et al., 1995; Pearlin et al., 1990). Future research directions prompted by study limitations and research findings will be addressed for each hypothesis.

Hypotheses 1 and 2

Limitations and future directions. The main limitations of this study for the first two hypotheses include: cross-sectional measurement, under-representation of minority caregivers, an in-home respite intervention of relatively low magnitude, and a measure of caregiver time not yet subject to psychometric scrutiny. The research implication for the first three limitations is the need for longitudinal assessment of the current hypotheses with a large, representative sample. Ideally, this assessment would also involve repeated measures and respite services of a larger magnitude (the minimum requirement in ADCCS research is twice per week for three months). Use of a larger sample would allow one to address questions of generalizability within this study by replicating these analyses with caregiving dyads of differing ethnic backgrounds, multiple forms of respite, and multiple patient diagnostic groups. Sub-group comparisons based upon these variables would allow researchers to assess the relevance of findings for diverse caregivers.

The limitation pertaining to the newly developed measure of caregiver time can be addressed through the use of a measurement study. Optimally, researchers could compare objective measurement of caregiver time to the most commonly used means of assessing this variable: diary methodology, a “typical day” approach, and the “yesterday” strategy. Admittedly, naturalistic and objective assessment of caregiver time is a nearly impossible

proposition due to demand characteristics and biases of confederate observers. In lieu of a creative solution to the problem of truly objective naturalistic measurement, one could simulate these issues in a controlled lab environment. Researchers could objectively assess caregiver time, and also collect caregiver self-reports of time usage via the other measurement modalities. This methodology would allow comparison of the less invasive, time-intensive approaches to objective data and suggest additional time categories to assess.

Findings and future directions. For Hypotheses 1 and 2, several findings elicit additional questions that can be addressed by future research. First, this study revealed a lack of relationship between primary objective stressors and caregiver depression in a mixed-diagnostic community sample utilizing in-home respite. Given the considerable research and theoretical support backing this relationship with dementia dyads (Hinrichsen & Niederehe, 1994; Pearlin et al., 1990; Pinquart & Sorenson, 2004), additional longitudinal research is necessary to examine this issue for mixed diagnostic caregivers.

First, this finding may indicate that primary objective stressors and depression are associated via the process of Stress Proliferation, wherein two unrelated constructs are linked through multiple intermediary variables (Aneshensel et al., 1995; Pearlin et al., 1997). Research to examine this issue could involve longitudinal measurement of primary objective stressors, secondary stressors, chore time, and depression in a large sample of mixed-diagnostic caregivers. Sub-analyses could be conducted to determine if the relationship between patient problems and caregiver depression differs for those caring for persons with dementia versus those caring for someone with a purely physical problem. If a significant relationship between primary objective stressors and depression is found for mixed diagnostic caregivers, then analyses could be conducted to determine whether the caregiver chore time variable serves as a mediator between

primary objective stressors and depression. Significant mediation of chore time in a non-respite using sample would explain why the relationship between primary objective stressors and depression could not be documented in the current study, wherein caregivers used respite time to complete chore-related tasks.

Future researchers could also investigate whether respite usage moderates the relationship between primary objective stressors and depression. Ideally, this type of study would involve an experimental design involving community family caregivers randomly assigned to a respite treatment group or waitlist control. Researchers could examine the interaction effect of primary objective stressors and respite group (treatment versus control) on caregiver depressive symptoms. A significant interaction effect would indicate that respite usage moderates the relationship between primary objective stressors and depression.

Another non-significant finding involved the lack of relationship between caregiver discretionary time and depression. As was earlier suggested, this finding may have been prompted by a floor effect of discretionary time. Due to the high demands on caregivers' time, it may be impossible for depressed caregivers to demonstrate significantly less discretionary time than their non-depressed counterparts. To evaluate this hypothesis, researchers would need to conduct an empirical study comparing discretionary time totals for depressed versus non-depressed caregivers. This type of study could involve recruiting a sample of caregivers reporting significant symptoms of depression (i.e., a score of 16 or greater on the CES-D), and creating a non-depressed control group matched on demographic variables, use of formal and informal supports, and severity of patient problems. Comparison of these two groups on use of discretionary time would permit an understanding of whether discretionary time differs between depressed and non-depressed caregivers.

Future research could also be undertaken to further explore conceptual relationships relating to chore time and Stress Process constructs (Aneshensel et al., 1995; Pearlin et al., 1990). This was the first study to examine chore time as a construct in the Stress Process Model, and findings revealed a modest relationship with depression, after controlling for relevant variables. Future researchers could further examine the role of this variable within the Stress Process Model. As previously mentioned, this variable could be longitudinally examined as a mediator or proliferator of the relationship between primary objective stressors and depression. Additionally, new studies could be used to address the possibility that the relationship between chore time and depression is cyclical in nature. Examination of the cyclical hypothesis would optimally involve a sample of caregivers with newly diagnosed family members to allow better understanding of the Stress Process from the outset of caregiving. Ideally, data collection would incorporate multiple points of measurement (at least three) to examine the reciprocal impact of these variables. By collecting longitudinal data on chore time and other relevant Stress Process constructs, researchers conducting this study could also examine additional hypothesized relationships pertaining to chore time.

Hypothesis 3

Counter to past research findings and theory, contextual variables, primary objective stressors, and caregiver depression did not predict subsequent in-home respite service usage in this sample. As previously mentioned, prior research is either based upon baseline data or does not take into account the impact of past service usage. Pearlin et al., (1990) conceptualize service usage as a predictor variable, and Andersen (1995) discusses the concept of a feedback loop, wherein perceived outcomes (i.e., depression or patient status) impact subsequent usage. Future research could address the question of which variables predict the extent of continued

usage, as opposed to initial usage of in-home respite. Ideally, a study examining this issue would use longitudinal methodology to examine these issues in sequential cohorts entering an existing program. An incoming cohort could be assessed on relevant variables at baseline and every three months thereafter, with objective service usage data collected from the agency. Continued usage of this design for incoming cohorts would allow examination of predictors of the extent of respite usage at various time points, and would control for the effects of history, maturation, and non-random sampling.

Summary

In sum, future research can assist in clarifying and extending the findings of the current study by correcting methodological limitations and examining additional conceptual relationships based upon the results noted herein. Future research studies will ideally involve a psychometrically tested measure of caregiver time, longitudinal assessment of relationships, and research samples sufficiently large to examine conceptual relationships for various sub-groups of participants.

Conclusion

The current study was created to address common problems in past respite literature: lack of conceptual or theoretical grounding, little research on in-home respite (the most preferred type of respite), few research studies pertaining to existing programs, and sparse literature pertaining to the predictors of respite service usage. The strengths of this study, thus, are the grounding of hypotheses and constructs in the predominant model of family caregiver stress (Aneshensel et al., 1995; Pearlin et al., 1990), the examination of research questions pertaining exclusively to in-home respite, the use of a caregiving sample currently enrolled in a community program, and the study of predictors of government subsidized respite use.

Findings indicated that higher levels of prior respite usage were related to lower levels of current caregiver depressive symptoms. Additionally, caregiver time devoted to non-care related chores on a typical respite day was modestly related to lower levels of caregiver depression. Analyses pertaining to the extent of service usage for this sample revealed that the only significant predictor of in-home service use over three months was past service use.

The main limitation of the current study is the cross-sectional examination of relationships between primary objective stressors, caregiver time variables, and caregiver depression. Future research examining these relationships longitudinally is necessary to draw firm conclusions about these associations. Additionally, future researchers could add to the respite knowledge base by developing new studies with representative community samples to better understand the conceptual underpinnings and theoretical constructs relevant to the prediction of caregiver depression and service utilization.

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