Self and Identity

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/psai20

““I am a blood sugar checker””: Intervening effects of self-as-doer identity on the relationship between self-efficacy and diabetes self-care behaviors

Amanda M. Brouwer & Katie E. Mosack

Department of Psychology, University of Wisconsin–Milwaukee, Milwaukee, WI, USA

Available online: 27 Sep 2011

To cite this article: Amanda M. Brouwer & Katie E. Mosack (2011): ““I am a blood sugar checker””: Intervening effects of self-as-doer identity on the relationship between self-efficacy and diabetes self-care behaviors, Self and Identity, DOI:10.1080/15298868.2011.603901

To link to this article: http://dx.doi.org/10.1080/15298868.2011.603901

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.tandfonline.com/page/terms-and-conditions

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.
“I am a blood sugar checker” – Intervening effects of self-as-doer identity on the relationship between self-efficacy and diabetes self-care behaviors

Amanda M. Brouwer and Katie E. Mosack

Department of Psychology, University of Wisconsin–Milwaukee, Milwaukee, WI, USA

The mechanisms by which self-efficacy contribute to improved diabetes self-care behaviors are poorly understood. We propose that the “self-as-doer” identity might help explain the relationship between behavioral self-efficacy and health behavior enactment. Adults with diabetes (type I = 200, type II = 130) completed self-report measures assessing diabetes management-specific self-efficacy, self-as-doer, and self-care behaviors. We tested the intervening effects of the “self-as-doer” identity on the relationship between self-efficacy and diabetes self-care behaviors. For persons with type I diabetes, self-as-doer was a significant intervening variable for all self-care behaviors. Significant indirect effects of self-as-doer were found for exercise, diet, and blood glucose monitoring for persons with type II diabetes. Implications and recommendations for interventions are discussed.

Keywords: Diabetes; Identity; Self-as-doer; Self-care behaviors; Self-efficacy.

Identity plays a vital role in how persons with chronic illnesses enact disease-related self-care behaviors (Leventhal, Brissette, & Leventhal, 2003; Tilden, Charman, Sharples, & Fosbury, 2005). Diabetes is very much a self-managed disease with outcomes strongly connected to specific self-care behaviors. Glycemic control can be achieved by maintaining a proper diet, adjusting insulin and/or oral medication, testing glucose levels, and engaging in regular exercise (American Diabetes Association, 2010; Norris, Engelgau, & Narayan, 2001; Sousa, Zauszniewski, Musil, Lea, & Davis, 2005). Therefore, understanding factors that influence the frequency of diabetes self-care behaviors in relation to identity and concepts concerning the self can inform the development of effective interventions.

Self-efficacy, which reflects one’s perceived ability to perform goal-directed behaviors, plays a pivotal role in health behavior enactment (Bandura, 1986, 1998). It serves as the basis of action by enhancing knowledge and skills and regulating

Received 5 March 2011; accepted 24 June 2011; first published online 0000.

We would like to acknowledge Mandy Krueger and Jennifer Feenstra for theory development of the Self-as-Doer-Diabetes and Linda Houser-Marko and Kennon Sheldon for their invaluable feedback on the development of self-care behavior specific doer phrases. We would also like to thank Cindy Walker for assistance with data analysis, Mark Klosiewski, Angela Wendorf, Erin Moore, Liliya Sokolova, and Solomiya Kucheras for support with data collection and manuscript review. Finally, we thank the participants for making this research possible.

Correspondence should be addressed to: Amanda Brouwer, PO Box 413, Milwaukee, WI, 53201, USA. E-mail: abrouwer@uwm.edu

© 2011 Psychology Press, an imprint of the Taylor & Francis Group, an Informa business
motivation. In order for behavior to be enacted, individuals must first believe in their ability to organize and execute actions (Bandura, 1998). Likewise, the degree of perceived self-efficacy affects the extent to which one acquires knowledge and skills; the more one believes in one’s ability to enact certain behaviors, the more likely one will seek out knowledge and skills related to those behaviors (Bandura, 1998).

Self-regulation, which refers to the motivational processes by which one identifies behavior-related goals, ways to achieve those goals, and the degree of success and failure of those goals (Zeidner, Boekarets, & Pintrich, 2000), has been identified as a mechanism by which self-efficacy influences health behavior. Anderson, Winett, Wojcik, and Williams (2010) found that behavior-specific self-regulation mediated the effect of nutrition and physical activity-specific self-efficacy on fruit and vegetable consumption and enacted physical activity. The authors concluded that setting goals and regulating health behavior based on activity-specific goals was an important mechanism by which self-efficacy increased physical activity and fruit and vegetable consumption. Thus, the belief that one can perform health behaviors influences behavioral goals and persistence to reach those goals. These efficacy beliefs also influence the self-regulation of health behaviors. Diabetes-specific self-efficacy facilitates self-care behavior enactment and therefore promotes health and well-being (Iannotti et al., 2006; Rustveld et al., 2009). Results from cross-sectional studies revealed that adults with type I or type II diabetes who were identified as having greater diabetes self-efficacy maintained better self-care behaviors in meal planning (Weijman et al., 2005) and foot-care behaviors (Borges & Ostwald, 2008). Furthermore, diabetes-specific self-efficacy appears to be a stable variable causally related to self-care behaviors. Self-efficacy has been demonstrated to predict adequate glycemic control (Yi, Vitaliano, Smith, Yi, & Weinger, 2008) and physical activity behaviors in persons with type I and type II diabetes longitudinally (Plotnikoff, Lippke, Courneya, Birkett, & Sigal, 2008). Moreover, Trief, Teresi, Eimicke, Shea, and Weinstock (2009) found that a change in diabetes-specific self-efficacy due to a Diabetes Education and Telemedicine intervention directly predicted improved glycemic control two years after intervention implementation.

Although self-efficacy has been consistently associated with better self-care behaviors, little is known about the mechanisms by which self-efficacy affects diabetes self-care behaviors, particularly in relation to identity. Like self-efficacy, identity has been found to increase behavioral enactment (Strachan & Brawley, 2008, 2009). According to Stryker and Burke, the self is composed of multiple parts or identities, each relating to social roles defined from cues in the social environment (e.g., self as teacher; Burke, 1991; Stryker, 1987; Stryker & Burke, 2000). These situational selves then engender associated meanings (e.g., “Teachers encourage scholarship”), which promote related behavior (“I will provide learning opportunities for my students”). Furthermore, the more one identifies with a particular role, the more likely one is to behave in accordance with that role. Using such a framework, researchers have found associations between the strength of identity and more frequent health behaviors in both cross-sectional and intervention studies (Cardinal & Cardinal, 1997; Jenum, Lorentzen, & Ommundsen, 2009). For example, persons who identified themselves as exercisers or healthy eaters were more likely to exercise or make healthy diet choices compared to those who did not identify with these respective roles (Strachan & Brawley, 2008, 2009).

If we were to extend this perspective on identity to those with diabetes, we would surmise that the more patients with diabetes identify with the role of being diabetic, the more likely they would be to engage in associated self-care behaviors, such as
taking medications, checking blood sugars, and eating appropriate foods. However, researchers have yet to explore the relationship between identity and diabetes self-care behavior. An identity construct that may be useful in understanding the process by which a person with diabetes decides to engage in health-enhancing behaviors is the “self-as-doer” (Houser-Marko & Sheldon, 2006). The self-as-doer theory purports that there is a cognitive link between the self (identity) and the action being performed. Self-as-doer is defined in terms of a self-concept or identity wherein action and self are combined in working memory. It is, therefore, more than just the self and more than just a behavior or intention; it is an active combination of the two. For this reason, self-as-doer is understood as one’s identification with doing a behavior or action (Houser-Marko & Sheldon, 2006). This construct posits that personal identity is connected with social principles and ideals, suggesting that one will act according to these mores. The self-as-doer also implies that an individual defines him- or herself as a doer of the behavior based on self-defined goals, a component important in self-efficacy and self-regulation theories. For example, a man with diabetes may have a goal of consistently checking his blood glucose. Consequently, he may be more inclined to see himself as a blood glucose checker or the doer of the behavior, and may therefore be more likely to check his blood glucose levels. Self-as-doer capitalizes not only on the identification of one’s identity role, but the behavior based upon that role. The ability to connect one’s identity to the behavior is what makes the self-as-doer a unique and relevant construct to the study of health behavior decision making.

Houser-Marko and Sheldon (2006) found that self-as-doer predicted behavior or goal attainment above and beyond goal commitment, previous experience with goals, concordance between goals and values, expectancies, and personality constructs such as openness to experience and neuroticism with regard to final college grade point average and exercise. Furthermore, they examined the cognitive accessibility of the self-as-doer for those persons who do not already consider themselves as the “doer” of their behaviors and they found that participants can access the self-as-doer either momentarily or recurrently. In fact, those whose self-as-doer identity was primed demonstrated greater exercise persistence than those who received no identity priming. Houser-Marko and Sheldon concluded that the self-as-doer construct is focused on present behavior rather than outcome expectancies, on performing behaviors rather than enjoying them, and on demonstrating one’s identity to oneself rather than demonstrating a particular socially acceptable identity to others. Furthermore, we argue that the self-as-doer is different than performing behaviors because it is theorized to be the cognitive representation of combining identity and behavior rather than only behavioral performance.

Pilot studies have demonstrated that diabetes-specific self-as-doer identity is an important factor in the frequency of diabetes self-care behaviors. Among those with type I and type II diabetes (N = 97), self-efficacy and self-as-doer were associated with diabetes self-care-behaviors (Brouwer, 2008). Together, self-efficacy and self-as-doer accounted for over 52% of the variance in self-care behaviors; the addition of the self-as-doer resulted in a significant increase in the amount of variance accounted for in self-care behaviors above and beyond self-efficacy. Subsequent research further supported these findings. Our previous research (Brouwer, Mosack, & Wendorf, 2010) has demonstrated that self-as-doer identity specific to diabetes self-care behaviors significantly predicted diet, exercise, foot care, and medication behaviors above and beyond demographic variables such as age, gender, education,

Like self-efficacy, self-as-doer focuses on goal-directed behaviors. Self-efficacy, however, reflects one's perceived ability to perform specific behaviors and self-as-doer is defined as the cognitively constructed identity of the agent enacting the behavior. Therefore, self-as-doer extends self-efficacy as it provides a theoretical link between perceived ability and behavior. As such, self-as-doer may play an intervening role in the established effects of self-efficacy on various diabetes self-care behaviors. Furthermore, self-efficacy may not directly lead to behavioral enactment for all health behaviors (McAuley & Blissmer, 2000; Perrin, Swerissen, & Payne, 2009). It may be that self-efficacy affects the development of other cognitive and motivational skills such as awareness of the need for self-care behaviors, emotional regulation, goal identification, and persistence. These skills, in turn, may influence self-care behaviors. The self-as-doer shares theoretical underpinnings with self-efficacy; yet, to date, research has not adequately explored this association. Self-as-doer and self-efficacy are both positively and strongly correlated with diabetes self-care behaviors and with each other (Brouwer, 2008; Brouwer et al., 2010). We contend that the self-as-doer may be the mechanism by which self-efficacy contributes to behavioral enactment.

The aim of the present study was to examine the relationship among self-efficacy, self-as-doer and diabetes self-care behavioral variables (see Figure 1). We hypothesized that for persons with type I or type II diabetes, self-as-doer would be a significant intervening variable on the relationship between self-efficacy and self-care behaviors of exercise, diet, blood glucose monitoring, and medication and foot care behaviors. More specifically, we expected that greater self-efficacy would be related to stronger doer-identity, which, in turn, would be associated with greater frequencies of self-care behaviors.

**Method**

**Participants**

Participants were 338 adults (183 women, 153 men) diagnosed with diabetes and ranging in age from 18–84 ($M = 39.53$, $SD = 16.25$) years. To ensure that participants had the opportunity to establish diabetes-related self-care behaviors, participants were only included in the study if they had a diagnosis of diabetes for at least one year. Additional inclusion criteria were that participants must be age 18 years or older and have a self-reported diagnosis of diabetes. Two hundred (59.2%) participants had type I (insulin dependent) diabetes, 130 participants (38.5%) had type II (adult onset) diabetes, 4 reported having another type of diabetes, and 4 reported being unsure about the type of diabetes they had. Only participants ($N = 330$) who indicated that they had either type I or type II diabetes were included in subsequent analyses. Participants’ hemoglobin A1c (HbA1c) ranged from 4.9% to 16% ($M = 7.25$, $SD = 1.43$). Additional descriptive statistics and findings about the differences between participants on the basis of diabetes type can be found in Table 1.

**Procedure**

The present study was approved by Institutional Review Boards (IRBs) at a local community hospital and the authors’ university. It follows all ethical guidelines
established by the American Psychological Association. We recruited participants at local Midwestern diabetes health clinics and from on-line diabetes-related support groups and blogs where people from across the United States could participate.

TABLE 1  Demographic, Health, and Diabetes Care Comparisons Between Participants With Type I and Type II Diabetes

<table>
<thead>
<tr>
<th>Type of Diabetes</th>
<th>Type I</th>
<th>Type II</th>
<th>Total&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size N (%)</td>
<td>200 (59.2)</td>
<td>130 (38.5)</td>
<td>338</td>
</tr>
<tr>
<td>Gender**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male N (%)</td>
<td>105 (52.5)</td>
<td>46 (35.4)</td>
<td>153 (45.3)</td>
</tr>
<tr>
<td>Female N (%)</td>
<td>95 (47.5)</td>
<td>83 (63.8)</td>
<td>183 (54.1)</td>
</tr>
<tr>
<td>Months of diagnosis</td>
<td>205.13 (124.43)</td>
<td>114.10 (92.60)</td>
<td>163.86 (122.56)</td>
</tr>
<tr>
<td>Age (years) M (SD)**</td>
<td>31.25 (12.77)</td>
<td>51.95 (12.86)</td>
<td>39.92 (16.39)</td>
</tr>
<tr>
<td>HbA1c M (SD)**</td>
<td>7.7 (1.47)</td>
<td>7.22 (1.32)</td>
<td>7.49 (1.45)</td>
</tr>
<tr>
<td>Medication type&lt;sup&gt;b&lt;/sup&gt; %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulin</td>
<td>47.5</td>
<td>24.6</td>
<td>38.5</td>
</tr>
<tr>
<td>Insulin pump</td>
<td>65.0</td>
<td>4.6</td>
<td>40.2</td>
</tr>
<tr>
<td>Injections</td>
<td>30.0</td>
<td>20.0</td>
<td>26.0</td>
</tr>
<tr>
<td>Insulin plus meds</td>
<td>2.5</td>
<td>3.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Oral medication</td>
<td>2.5</td>
<td>62.3</td>
<td>25.4</td>
</tr>
<tr>
<td>Other or none</td>
<td>3.5</td>
<td>10.0</td>
<td>15.4</td>
</tr>
<tr>
<td>Marital status, n (%)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>117 (58.5)</td>
<td>37 (28.5)</td>
<td>157 (46.4)</td>
</tr>
<tr>
<td>Married/partnered</td>
<td>72 (36.0)</td>
<td>67 (51.5)</td>
<td>140 (41.4)</td>
</tr>
<tr>
<td>Divorced, widowed, or “other”</td>
<td>11 (5.5)</td>
<td>25 (19.3)</td>
<td>39 (11.6)</td>
</tr>
<tr>
<td>Education, n (%)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some high school, diploma, or GED</td>
<td>13 (6.5)</td>
<td>36 (27.7)</td>
<td>51 (15.0)</td>
</tr>
<tr>
<td>Some college</td>
<td>74 (37.0)</td>
<td>43 (33.1)</td>
<td>121 (35.8)</td>
</tr>
<tr>
<td>Earned associate degree</td>
<td>22 (11.0)</td>
<td>14 (10.8)</td>
<td>37 (10.9)</td>
</tr>
<tr>
<td>Earned BA/BS degree</td>
<td>62 (31.0)</td>
<td>15 (11.5)</td>
<td>77 (22.8)</td>
</tr>
<tr>
<td>Earned master’s, doctorate or professional degree</td>
<td>29 (14.5)</td>
<td>22 (16.9)</td>
<td>43 (12.7)</td>
</tr>
<tr>
<td>Ethnicity, n (%)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>8 (4.0)</td>
<td>42 (32.3)</td>
<td>53 (15.7)</td>
</tr>
<tr>
<td>Caucasian/White</td>
<td>177 (88.5)</td>
<td>77 (59.2)</td>
<td>257 (76.0)</td>
</tr>
<tr>
<td>Other or multicultural&lt;sup&gt;c&lt;/sup&gt;</td>
<td>15 (7.5)</td>
<td>10 (8.5)</td>
<td>27 (8.1)</td>
</tr>
</tbody>
</table>

Notes: <sup>a</sup>Total includes participants who indicated type of diabetes as “other”, “I’m not sure what kind of diabetes I have” or who did not respond to the question. <sup>b</sup>Percentages may not add up to 100% because participants were asked to check all that applied. There may be a discrepancy in percentage of insulin as a medication type for persons with type I diabetes. Participants may not have checked both insulin pump and insulin even though an insulin pump uses insulin. <sup>c</sup>Includes Hispanic/Latino/a, Native American, and Asian or Pacific Islander ethnicities. *p < .05; **p < .01; ***p < .001.
Study advertisements (i.e., flyers) were designed to inquire as to whether participants had type I or type II diabetes. If participants acknowledged that they had type I or type II diabetes, the advertisement then provided instructions to complete the informed consent and survey materials provided. Study advertisements and survey materials were available in clinic waiting rooms (i.e., four family practice, one internal medicine and one diabetes treatment center) where participants could respond by completing a hard copy of the survey (which consisted of demographic, disease, psychological, and behavioral self-report measures) or providing follow-up contact information. Those who gave follow-up contact information received either a hard copy of the survey through the mail or an e-mail providing them with an electronic link to the survey. Information about the study was also made available to members of the on-line diabetes-related support groups and blogs. Study advertisements were similar to those provided in the clinic waiting rooms with the exception that participants were informed that paper survey copy could be mailed to them upon request. Participants who responded to a request for participation were then sent a link to complete the electronic version of the survey on their personal computers. Regardless of recruitment method, informed consent was garnered before participation. Of the participants, 28% chose to complete the paper and pencil version survey whereas 72% completed the survey online. Participants received a $10.00 gift card for their participation, which was estimated to take approximately 10–20 minutes. All data were entered and analyzed using SPSS 17.0.

**Self-report Survey Measures**

*Demographic and disease-related data.* Basic demographic and disease-related data, including date of diabetes diagnosis, diabetes and medication type (i.e., insulin, oral medication, no medication, etc.) and most recent hemoglobin A1c (HbA1c) were collected. HbA1c is the percentage of glucose bound to hemoglobin, and the test measures blood glucose concentration over the last 3–4 months. HbA1c tests are frequently used to assess glycemic control and have been argued to be an accurate measure of glycemic control (American Diabetes Association, 2005). The American Diabetes Association (2010) suggests that adequate glycemic control is indicated by an HbA1c of less than 7.1%. Length of time with a diabetes diagnosis was derived from date of diabetes diagnosis and the date of survey completion.

*Self-as-doer.* The Self-as-Doer-Diabetes was created for this study to examine self-as-doer identity specifically related to diabetes self-care behaviors. The scale was developed from a content analysis of the 522 self-as-doer statements constructed by a previous study’s participants (N = 97; Brouwer, 2008). For that study, participants were asked to create goals related to their diabetes self-care behaviors. From these goals, the participants independently generated behavior-specific “–er” phrases. For example, if a person’s goal was to “check blood sugar more frequently” the doer phrase might have become “frequent blood sugar checker.” A qualitative content analysis of the participant-generated –er phrases was conducted. The most common doer phrases related to diet, exercise, glucose monitoring, sleep, and stress. Based on participant responses, we created 27 diabetes self-care behavior-related doer statements. Some of these statements reflected the exact phrases generated by participants (e.g., “frequent exerciser” and “good A1c getter”) while other statements represented more global behavioral dimensions. For example, the self-as-doer phrase “Diabetes Health Care Team Communicator” was created from
specific phrases such as “good communicator (with my doctor)” and “avid listener and learner (with health care provider).” The 27 diabetes self-care behavior doer statements were further refined and modified based on feedback provided by experts including two individuals who have been diagnosed with diabetes, four diabetes nurse educators, and the researchers who first defined the self-as-doer construct (L. Houser-Marko & K. Sheldon, personal communication, 15 September 2008). Finally, we expanded the number of items in accordance with best practices of measurement theory (DeVellis, 2003). In total, 48 doer statements were created.

To measure the self-as-doer construct in the current study, participants were given this list of 48 doer statements and asked to rate “To what degree do you see yourself as a [doer statement]” on a 1 (does not describe me well at all) to 5 (describes me very well) Likert-type scale. Example doer statements include “sweet resister,” “good A1c getter,” “frequent blood sugar checker,” and “stress manager.” After computing a principal components analysis (PCA) with varimax rotation and conducting tests of reliability, Self-as-Doer-Diabetes was reduced to 42 items with a 7-factor solution that explained 55.24% of total variance. The 7 components were labeled, “Blood Glucose Monitor”, “Physical Activity Doer”, “Active Health Care Participator”, “Medication/Insulin Regulator”, “Secondary Care Doer”, “Stress Manager” and “Food/Diet Follower”. All components were positively and moderately correlated with one another (p < .01) with correlations ranging from .29 to .50. Component alpha reliabilities ranged from .72 to .89, and the overall 42-item Self-as-Doer-Diabetes was α = .93. Given the argument that self-as-doer represents a consistent and stable identity (Houser-Marko & Sheldon, 2006) and the significant and positive relationships that we found between all subcomponents of the measure, we used the more parsimonious total Self-as-Doer-Diabetes score for all analyses.

**Self-efficacy.** Self-efficacy was measured using the Diabetes Management Self-Efficacy Scale (van der Bijl, van Poelgeest-Eeltink, & Shortridge-Baggett, 1999). Adequate construct and criterion validity for this measure have been demonstrated in similar populations (Sturt, Hearnshaw, & Wakelin, 2010; van der Bijl, et al., 1999). Participants responded to 20 questions on a Likert-type scale as to how much they agreed or disagreed with statements expressing levels of confidence for various diabetes self-care behaviors. An example question is: “I am confident in my ability to check my blood sugar if necessary.” An average overall score is created to determine the level of diabetes self-efficacy. For this study, the Likert-type scale and the anchoring points were not consistent between the electronic and paper versions due to a clerical error. The paper version was consistent with the original Diabetes Management Self-Efficacy Scale. Participants responded on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The electronic version of the scale was inadvertently modified such that the electronic version of this scale had a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). To address the statistical scaling differences in the two measures, both the paper and electronic measures were rescaled to a conceptually consistent 4-point Likert-type scale (i.e., 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree). In the current study, Cronbach’s alpha for this rescaled measure is .94. The rescaled version of the self-efficacy measure correlated strongly with the original electronic (r = .97, p < .001) and paper (r = .99, p < .001) versions. As such, the rescaled version was used for all subsequent analyses.
Self-care behaviors. The Summary of Diabetes Self-Care Activities (SDSCA; Toobert, Hampson, & Glasgow, 2000) questionnaire was used to assess diabetes self-care behaviors. Construct and criterion validity of the SDSCA has been established in samples of persons with type I and type II diabetes (Toobert et al., 2000). The SDSCA assesses the frequency of behaviors over the last seven days in five regimen areas: diet (five questions), exercise (two questions), glucose testing (two questions), foot care (five questions) and diabetes medication (two questions; one for diabetes medication and one for insulin injections/pump boluses). For example, “On how many of the last seven days did you take your recommended diabetes medication?” Respondents were asked to report the frequency of these self-care behaviors on a 1 to 7 scale regarding the number of days they participated in a particular behavior. Scores for each regimen area were averaged. For the two medication items, respondents had a “do not take” response option in the event that they were not prescribed both insulin injections/boluses and oral medication. For these participants, only the single item was used to assess medication adherence. Scores ranged from 0.93 to 6.93 (SD = 1.02). Higher scores reflect more frequent behaviors. Cronbach alphas in the current study were, diet $\alpha = .63$, glucose testing $\alpha = .79$, foot care $\alpha = .72$, and exercise $\alpha = .86$. Reliability could not be calculated for participants who only took insulin or medication because they only responded to one item. However, the Cronbach’s alpha for those who responded to both the medication and insulin items was $.89$.

Data Analyses

Descriptive statistics and frequencies were calculated for relevant study variables. Independent samples $t$-tests and chi-squared tests were calculated to determine possible disparities in key study variables that may have existed between data derived from on-line and paper-and-pencil surveys. To test the study’s hypotheses, we employed mediation analyses according to Preacher and Hayes (2008) in which we examined the indirect effect of self-efficacy on self-care behaviors through self-as-doer.

Figure 1 depicts the conceptual intervening variable model in which the effect of self-efficacy on self-care behaviors is in part due to the intervening variable self-as-doer (i.e., the indirect effect). Path $a$ represents the effect of self-efficacy on self-as-doer, path $b$ represents the effect of self-as-doer on self-care behaviors ignoring the effects of self-efficacy. Path $c'$ is the direct effect of self-efficacy on self-care behaviors. In this model, the total indirect effect of self-efficacy on self-care behaviors through self-as-doer can be determined by calculating the product of $a$ and $b$. The total effect of self-efficacy on self-care behaviors is represented by $c$ and is the sum of the direct and indirect effects (i.e., $c = c' + ab$). In the present study, we used the non-parametric bootstrapping method (MacKinnon, Lockwood, & Williams, 2004;
Preacher & Hayes, 2004, 2008) to test for intervening effects because it does not assume normality in the sampling distribution and some self-care behaviors are likely skewed (e.g., medication behaviors). An empirical approximation of the sampling distribution of the intervening effect is computed by repeatedly sampling from the data thousands of times. Three thousand samples were drawn for the current study. Bias corrected confidence intervals (BCCI) are created for the intervening effect. If zero is included in the interval, the intervening effect is not significant. Unlike other methods of testing intervening variable models (Barron & Kenny, 1986), the bootstrap method tests intervening effects directly and therefore does not necessarily determine full or partial mediation (Hayes, 2009). We then calculated the proportion of variance accounted for by the mediation as a measure of effect (i.e., $R^2_{\text{mediation}}$; Fairchild, MacKinnon, Taborga, & Taylor, 2009).

Since diabetes self-care behaviors do not generally correlate with one another (Toobert et al., 2000) and were not found to be consistently correlated in the current study (see Table 2), tests of intervening effects were performed separately for each of the five tested self-care behaviors. Separate analyses were also performed for persons with type I and type II diabetes given the reported etiological, physiological, demographic, and health behavior differences between these two groups found both within our sample and in the literature more generally (American Diabetes Association, 2005, 2010; Plotnikoff, Lippke, Courneya, Birkett, & Sigal, 2008; Plotnikoff et al., 2010; Weijman et al., 2005). Previous research has demonstrated that individual characteristics such as age and gender can affect how persons chose to enact health promoting behaviors (Davy, Benes, & Driskell, 2006; Helgeson, Siminerio, Escobar, & Becker, 2009; Holmes et al., 2006), and how efficacy beliefs about health behaviors are developed (Wu et al., 2007). Developmental literature also suggests that the degree to which an individual with diabetes develops self-efficacy and enacts self-care behaviors may be contingent on the length of time one has lived with a diagnosis of diabetes (Johnston-Brooks, Lewis, & Garg, 2002; Wu et al., 2007). Therefore, to control for the influence of the aforementioned factors, age, gender and length of time living with a diabetes diagnosis were added as covariates in the intervening variable model. In the present study, covariates were partialed out of both the dependent measures (i.e., self-care behaviors) and the mediator variable (i.e., self-as-doer). There were significant relationships between age, foot care, illness duration, and diet for persons with type I diabetes. For persons with type II diabetes, age was significantly associated with self-as-doer, self-efficacy, and blood glucose monitoring. There were no significant gender differences in the present study. Correlation coefficients between covariates and study factors can be found in Table 2.

**Results**

**Group Differences by Survey Type**

Results suggest that a significantly greater proportion of persons with type I ($n = 179$) took the survey electronically compared to those with type II diabetes ($n = 58$), $\chi^2(1, N = 330) = 78.42, p < .001$. Among those with type I diabetes, persons who completed the on-line survey were younger (electronic: $M = 29.82$, $SD = 11.7$, paper: $M = 42.48$, $SD = 15.57$), $t(22.85) = -3.59, p = .002$, had a higher education, $\chi^2(6, N = 200) = 43.68, p < .001$, and were more likely to be White, $\chi^2(5, $
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type I diabetes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Self-as-doer</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Self-efficacy</td>
<td>.63***</td>
<td>.56***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Diet</td>
<td>.53***</td>
<td>.29***</td>
<td>.44***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Exercise</td>
<td>.40***</td>
<td>.30***</td>
<td>.22**</td>
<td>.09</td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Blood glucose monitoring</td>
<td>.36***</td>
<td>.15*</td>
<td>.30***</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Foot care</td>
<td>.28***</td>
<td>.33**</td>
<td>.22**</td>
<td>.09</td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Medication</td>
<td>.15*</td>
<td>-.13</td>
<td>.12</td>
<td>.06</td>
<td>.30***</td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Age</td>
<td>-.07</td>
<td>.07</td>
<td>.08</td>
<td>-.08</td>
<td>.05</td>
<td>.18*</td>
<td>-.09</td>
<td></td>
</tr>
<tr>
<td>9. Illness duration</td>
<td>-.07</td>
<td>.09</td>
<td>.18*</td>
<td>.01</td>
<td>.07</td>
<td>.09</td>
<td>-.06</td>
<td>.59***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type II diabetes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Self-as-doer</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Self-efficacy</td>
<td>.53***</td>
<td>.61***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Diet</td>
<td>.64***</td>
<td>.34**</td>
<td>.31**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Exercise</td>
<td>.36***</td>
<td>.40**</td>
<td>.40***</td>
<td>.22*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Blood glucose monitoring</td>
<td>.45***</td>
<td>.40**</td>
<td>.13</td>
<td>.28**</td>
<td>.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Foot care</td>
<td>.09</td>
<td>.31**</td>
<td>.13</td>
<td>.28**</td>
<td>.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Medication</td>
<td>-.02</td>
<td>.17</td>
<td>.07</td>
<td>.02</td>
<td>-.01</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Age</td>
<td>.26**</td>
<td>.29**</td>
<td>.15</td>
<td>.16</td>
<td>.21*</td>
<td>.12</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>9. Illness duration</td>
<td>.10</td>
<td>.13</td>
<td>.05</td>
<td>.05</td>
<td>.11</td>
<td>.00</td>
<td>.14</td>
<td>.37***</td>
</tr>
</tbody>
</table>

*Note: *p < .05; **p < .01; ***p < .001.*
N = 200) = 63.88, p < .001. There were no significant differences on key diabetes-specific psychological measures (e.g., self-efficacy, self-care behaviors) for persons with type I diabetes related to survey type. For persons with type II diabetes, significant differences were found between those who participated via electronic and paper surveys with respect to age, \( t(126) = -3.03, p = .003 \), ethnicity, \( \chi^2(5, N = 130) = 44.11, p < .001 \), and self-efficacy scores, \( t(70) = 3.21, p = .002 \). Persons who were younger (electronic: \( M = 47.80, SD = 13.43 \), paper: \( M = 55.33, SD = 11.60 \), White and had higher self-efficacy scores (electronic: \( M = 3.06, SD = 0.55 \), paper: \( M = 3.53, SD = 0.52 \)) were more likely to complete the survey electronically. Therefore, data collection method was entered as a fourth covariate (in addition to age, gender, and length of time living with a diabetes diagnosis) in all subsequent analyses.

Summary Statistics for Variables included in Tests of Intervening Effects

For descriptive purposes, independent samples \( t \)-tests were computed to identify differences in study variables between persons with type I and type II diabetes. Bonferroni corrections were performed to control for type I errors; the new criterion value for significance was .007. Persons with type I diabetes (\( M = 5.61, SD = 1.94 \)) reported significantly more frequent blood glucose monitoring behaviors than did persons with type II diabetes (\( M = 4.21, SD = 2.50 \), \( t(220.22) = 5.40, p < .001 \). Persons with type II diabetes (\( M = 4.65, SD = 1.35 \)) reported significantly more foot care behaviors than did persons with type I diabetes (\( M = 3.90, SD = 1.39 \), \( t(322) = -4.77, p < .001 \). No significant differences were found for diet, \( t(313) = 1.28, ns \), exercise, \( t(260) = 2.31, ns \), and medication, \( t(313) = -0.24, ns \), behaviors. Self-as-doer scores were significantly higher for those with type I (\( M = 3.40, SD = 0.55 \)) than for those with type II diabetes (\( M = 3.18, SD = 0.52 \), \( t(277) = 3.26, p = .001 \). Finally, there were no significant differences in self-efficacy scores, \( t(102.94) = 0.33, ns \).

Tests of the Intervening Variable Models

Results from tests of intervening effects are reported in Figure 2 for persons with type I diabetes and Figure 3 for persons with type II diabetes. Zero-order correlations among study variables for both diabetes types can be found in Table 2. With regard to those with type I diabetes, self-as-doer was a significant intervening variable in the relationship between self-efficacy and exercise, 95% BCCIs (0.82, 2.17), \( R^2_{mediation} = .08 \), diet 95% BCCIs (0.49, 1.26), \( R^2_{mediation} = .23 \), and foot care behaviors, 95% BCCIs (0.12, 1.00), \( R^2_{mediation} = .07 \). Significant indirect effects of self-as-doer were additionally found for blood glucose monitoring, 95% BCCIs (0.30, 1.62), \( R^2_{mediation} = .01 \), and medication behaviors, 95% BCCIs (0.16, 1.40), \( R^2_{mediation} = -.07 \). All results were in the hypothesized direction such that as self-efficacy increased, the degree of self-as-doer increased and was associated with increased reports of self-care behaviors even after controlling for age, gender, time living with diabetes, and collection method. After accounting for the indirect effects of self-as-doer, direct effects of self-efficacy (\( path c' \)) were only significant for diet and medication self-care behaviors and not for exercise, blood glucose monitoring, and foot care behaviors. Additionally, there was a suppression effect (cf. MacKinnon, Krull, & Lockwood, 2000) for medication behaviors in that when self-as-doer was controlled for, greater self-efficacy was associated with lower levels of medication behaviors.
For those with type II diabetes, self-as-doer was a significant intervening variable on the effect of self-efficacy on exercise, 95% BCCI (0.11, 1.62), $R^2_{\text{mediation}} = .09$, diet, 95% BCCI (0.08, 0.89), $R^2_{\text{mediation}} = .27$, and blood glucose monitoring behaviors, 95% BCCI (0.19, 1.75), $R^2_{\text{mediation}} = .12$. Similar to results of those with type I diabetes, all relationships were in the hypothesized direction and were significant even after controlling for age, gender, time living with diabetes, and data collection method. Direct effects of self-efficacy on exercise and blood glucose monitoring behaviors were not significant, whereas direct effects of self-efficacy on diet were significant. No significant indirect effects of self-as-doer were found to explain the relationship between self-efficacy and foot care, 95% BCCI (−0.86, 0.08), $R^2_{\text{mediation}} = .00$, and medication behaviors, 95% BCCI (−0.57, 0.36), $R^2_{\text{mediation}} = −.02$. The direct effect of self-efficacy and self-as-doer on medication behaviors, 95% BCCI (−0.92, 0.13), $R^2_{\text{mediation}} = .03$, was significant.
behaviors were not significant, thereby indicating that neither self-efficacy nor self-as-doer was related to medication behaviors. Furthermore, the direct effects of self-as-doer were not significant for foot care behaviors, thus suggesting no significant association between self-as-doer and foot care. Self-efficacy did have a significant direct effect on foot care behaviors, however.

Discussion

To date, there is very little research exploring how identity, as defined and developed by social roles (i.e., identity theory; Burke, 1991; Stryker, 1987; Stryker & Burke, 2000), influences the relationship between self-efficacy and diabetes self-care behaviors. Thus, the present study tested intervening variable models in which a diabetes self-care behavior doer identity construct, the self-as-doer, was used to understand the relationship between self-efficacy and key diabetes self-care behaviors. Results partially supported our hypothesis that the self-as-doer would
be a significant intervening variable in the relationship between self-efficacy and self-care behaviors. In fact, self-as-doer was a significant intervening variable for the relationship between self-efficacy and all self-care behaviors in the hypothesized direction for persons with type I diabetes. For persons with type II diabetes, self-as-doer was a significant intervening variable for the relationship between self-efficacy and all self-care behaviors except foot care and medication adherence behaviors. These results support previous research suggesting that an identity as a healthy eater and exerciser promotes corresponding behaviors (Strachan & Brawley, 2008, 2009). The current study’s findings, however, are the first to demonstrate the intervening role of a behavioral identity, the self-as-doer, in explaining the relationship between self-efficacy and self-care behaviors among persons with type I and type II diabetes.

Significant and positive indirect effects of self-as-doer for key self-care behaviors (i.e., exercise among those with either type I and type II, blood glucose monitoring among those with either type I and type II, and foot care among those with type I diabetes) suggest that having an identity as a “diabetes self-care behavior doer” may explain the mechanism by which perceived ability is associated with the frequency of these respective self-care behaviors regardless of age, gender, or length of time with a diabetes diagnosis. That is, for persons with either type of diabetes, seeing oneself as a doer of diabetes self-care behaviors may be more strongly related to, for example, exercising behavior better than one’s perceived ability to exercise. For persons with type I diabetes, endorsing a cognitive representation as a doer of self-care behaviors provides an additional motivational element needed to enact foot care behaviors. Likewise, our findings demonstrate that for persons with either type of diabetes, developing an identity that one is an enactor of diabetes self-care behaviors (e.g., a “blood sugar checker”) can facilitate blood glucose monitoring behaviors. The role of a diabetes-specific self-as-doer identity may help health-care providers and researchers further understand the nature of the relationship between self-efficacy and the frequency of blood glucose monitoring that others have demonstrated (Siebolds, Gaedeke, & Schwedes, 2006; Williams & Bond, 2002). Thus, clinical interventions that focus not only on enhancing perceived ability to exercise, perform foot care behaviors, and check one’s blood glucose but also on developing an identity as an exerciser and as a frequent foot and blood glucose checker may enhance the frequency by which persons with diabetes enact these behaviors.

Self-as-doer was also found to be a significant and positive intervening variable in the relationship between self-efficacy and diet (type I and type II) and self-efficacy and medication adherence behaviors (type I). In both analyses, however, self-efficacy still had a significant direct effect on diet and medication behaviors. Even though a direct effect for self-efficacy exists, the intervening role of the self-as-doer is still noteworthy. For example, the belief that one has the ability to make appropriate diet choices in and of itself may be important for persons with diabetes, but the effect that self-efficacy has on diet adherence may be further facilitated by developing an identity as, for example, a “fruit eater.” Thus, the role of identity is significant in understanding the extent to which self-care behaviors are enacted. Furthermore, in accordance with identity theory, the role of being a “diabetes diet follower” or “insulin taker” may be enhanced by social norms (i.e., the belief that persons with diabetes eat more fruit and less sugar), which might subsequently promote related behaviors (e.g., “I have diabetes. I am, therefore, a fruit eater and sugar resister”; Stets & Burke, 2000).

Contrary to our hypothesis, self-as-doer had no significant intervening effects on the relationships between self-efficacy and medication adherence behaviors for
persons with type II diabetes. Nonsignificant associations between medication adherence behaviors and self-efficacy and medication adherence behaviors and self-as-doer were found in the present study. Similar findings have been reported elsewhere (Chlebowy & Garvin, 2006). Nonsignificant relationships between medication adherence behaviors and self-efficacy and self-as-doer may be due to personal and ecological constraints resulting from poverty or isolation such as inadequate health care, poor health or health care literacy, or inadequate social support. For example, one’s perceived ability to take medication would not be relevant when one cannot afford the medication in the first place. The role of ecological factors on illness identity development and how those factors influence the relationship between self-efficacy and medication behaviors should be explored in subsequent studies. Lack of variability in medication adherence and insulin behaviors may have also contributed to nonsignificant effects. Over 80% of persons with type II diabetes reported 100% medication adherence. Similar trends in participant medication adherence reporting have been documented elsewhere and may suggest an inherent bias in such self-reports (Toobert et al., 2000). Future investigations should include other objective indicators of adherence such as pharmacy refill records or Medication Event Monitoring Caps (MEMS; AARDEX, n.d.) for those taking medication, in addition to self-reported medication adherence. We must also find innovative ways of validating other self-reported self-care behaviors, such as foot care, diet, and exercise.

Also contrary to our hypothesis, we found no evidence of significant indirect effects of self-as-doer on the relationship between self-efficacy and foot care behaviors in persons with type II diabetes. It may be that identity development as the doer of self-care behaviors is not as strong for persons with type II diabetes and therefore has a weaker connection with the frequency of certain self-care behaviors, such as foot care behavior. That is to say, persons with type II diabetes tend to be older and may have more help from others in carrying out their self-care behaviors. Checking one’s feet, in particular, might be more difficult for those who are older due to a lack of flexibility. In fact, others have documented that older adults with diabetes find it difficult to reach their feet (Schoenberg & Drungle, 2001; Tu & Barchard, 1993), which would suggest that the assistance from others is needed for proper foot care. Another possible explanation for the lack of an intervening relationship of self-as-doer for foot care behaviors for persons with type II diabetes may be related to the perceived burden of performing foot checking behaviors. Previous research demonstrates that among persons with type II diabetes, foot care behaviors are perceived as requiring the fewest lifestyle changes and consequently, are the most frequently performed self-care behavior among persons with type II diabetes (Anderson, Fitzgerald, & Oh, 1993; Gatt & Sammut, 2008). If little effort and few lifestyle changes are needed to enact foot care behaviors, then a doer identity that may provide additional motivation to enact self-care behaviors is not necessarily needed to aid in the enactment of foot care behaviors for persons with type II diabetes. Finally, the disparate self-as-doer effects may be related to identity development at the time of disease diagnosis. In the present study, persons diagnosed with type I diabetes were, on average, diagnosed in early adolescence ($M = 14.33$ years), a period of time during which social roles are being consolidated into one’s identity (Erikson, 1959, 1968; Tilden et al., 2005). It could be, then, that those diagnosed during this developmentally significant time period may be more likely to integrate a diabetes doer identity into their personal identity than would persons with type II diabetes who are likely to have been diagnosed later in life, and whose
identity consolidation may essentially be established by middle adulthood (Erikson, 1959).

Despite growing evidence of the relationship between the self-as-doer construct and key diabetes-specific self-care behaviors (Brouwer, 2008; Brouwer et al., 2010), one might argue that the identity as a “doer” of behaviors is essentially analogous to the actual enactment of such behaviors. We contend that although seeing oneself as the doer of self-care behaviors is very similar to actually performing diabetes self-care behaviors, the constructs and their measurements are different. The self-as-doer is theorized to be a cognitive representation of performing self-care behaviors or an identity that develops as a result of knowledge about expected self-care behaviors and social roles, rather than from actual enacted behaviors. Furthermore, in the present study, self-care behavior reports were retrospective and time limited whereas the Self-as-Doer-Diabetes measure is a global assessment of identity. Indeed, correlation coefficients between self-as-doer and self-care behaviors in the present study (range = .15 to .50) and in previous research (range = .30 to .46; Brouwer, 2008) have demonstrated that the self-as-doer, although related to diabetes self-care behaviors, taps into a different construct than the enactment of diabetes self-care behaviors. Researchers should examine how the self-as-doer is related to a biological measure of glycemic control such as HbA1c. Our research suggests a positive and significant relationship for persons with type I diabetes ($r = -.40$, $p < .001$), but we were unable to test the intervening model using HbA1c as an outcome measure due to substantial missing values, particularly among persons with type II diabetes. Research exploring the relationships between self-efficacy, self-as-doer, and HbA1c using medical chart reviews rather than self-report data would clarify the behavioral and cognitive overlap the of the self-as-doer.

Limitations and Additional Suggestions for Future Research

There are several limitations in the current study. The study was cross-sectional in nature, which limits our ability to make causal conclusions. Although significant intervening relationships were identified, it could be that the very process of enacting self-care behaviors actually enhances doer identity rather than the direction that we have theorized. Second, participants were persons with diabetes who responded to a request for research participation. Participants who are willing to participate in diabetes-related research studies likely differ from others in important ways, such as how they cope with a diabetes diagnosis or whether they are inclined to help others or seek out resources. Such differences, and the fact that we did not collect data on participants’ disease severity and comorbid conditions, might limit the degree to which we can generalize these results to all people with diabetes. A third limitation involves our adherence measure. Although the adherence subscale of the Summary of Diabetes Self-Care Activities has been validated in similar samples, the measure included only two items (a single item for oral medication and another for injected medication; Toobert et al., 2000). Because few people take medications in both forms, adherence data were frequently represented by a single item, which renders an assessment of internal consistency reliability impossible. Additionally, our measure of HbA1c was self-report, which may introduce bias in reporting and limit our ability to generalize our conclusions. Finally, a scaling error between the electronic and paper versions of the self-efficacy measure was made. While this limitation is not immaterial, once the problem was identified, appropriate measures were taken to address it. The rescaled measure had a Cronbach alpha of .94 and was strongly
correlated with both the original electronic ($r = .97$, $p < .001$) and paper ($r = .99$, $p < .001$) scale versions.

If we are to use the self-as-doer concept to effect change in people with diabetes, it will be important to examine the mechanisms by which the self-as-doer is more strongly related to diabetes self-care behaviors among those with type I than those with type II diabetes. It may be that etiological differences and divergent psychosocial experiences contribute to the development of distinct disease identities. If we were to find that there are important identity differences between those with type I and type II diabetes (e.g., by virtue of disease longevity, stigma, age at diagnosis, etc.), then diabetes education and adherence interventions could be tailored to address diabetes-specific identity development differentially for those with type I and type II diabetes.

Since a doer identity was significantly associated with self-care behaviors, we suggest that diabetes educators help patients to develop a doer identity specific to the self-care behavior or behaviors that a patient has the greatest trouble enacting. For example, if a woman with diabetes fails to check her blood sugar on a consistent basis, then a practitioner could engage her in a discussion about whether she defines herself as a “blood glucose checker” and whether she incorporates blood glucose monitoring behaviors into how she thinks about herself as someone with diabetes. Such a discussion might reveal that the patient has not fully integrated this type of behavior into her identity or that such a behavior is not consonant with her identity as may be the case with patients who avoid thinking about diabetes by not checking their blood sugars (Weijman et al., 2005). Similarly, researchers will be able to examine whether clinical interventions that focus on enhancing patients’ self-efficacy and their identities as the doers of self-care behaviors can improve the consistency with which people with diabetes perform self-care behaviors.

The current study’s findings can also inform psychologists as they work with persons adjusting to diabetes self-care behaviors. Psychologists could assist individuals with developing a self-as-doer identity through the use of motivational interviewing (Miller & Rollnick, 2002). For example, psychologists could explore the patient’s goals specific to diabetes management as well as broader life goals and values to examine discrepancy or coherence between their current health behaviors and their ideals. Emphasizing discrepancy between current behaviors and goals is done in part to increase the patient’s intrinsic motivation for change, while at the same time supporting the patient’s sense of self-efficacy through empowerment and confidence building. Psychologists could also focus on supplemental activities fostering identity development as the doer of self-care behaviors. For example, they might encourage self-reflective journaling or could refer patients to support groups that would emphasize health behaviors and self-as-doer identities.

Conclusions

Results of the present study provide evidence that the self-as-doer is a unique identity construct that could be used more commonly in diabetes health research. The current findings continue to support the positive role of self-as-doer in diabetes self-care behaviors and extend our previous work by explaining the relationship between self-as-doer and self-efficacy (Brouwer, 2008; Brouwer et al., 2010). Self-as-doer accounted for most of the variance of self-efficacy on self-care behaviors controlling for age, gender, and length of time with a diabetes diagnosis. Given the well-documented relationship between self-efficacy and self-care behaviors, the present
finding that self-as-doer may be an intervening variable in this relationship has important implications. Although more research is needed to draw causal conclusions, developing one’s identity as a diabetes self-care behavior doer (i.e., “foot checker” or “diet follower”) may be just as important for the enactment of certain self-care behaviors as developing the perceived ability to do them. Therefore, incorporating exercises designed to bolster a self-as-doer identity in diabetes education, interventions, and research will provide further understanding of the motivational mechanisms that promote health behaviors beyond the perceived ability to enact them.

References


