

A comprehensive literature review of theories and constructs utilized in type 2 diabetes self-care management research involving African-American men

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ABSTRACT

Introduction: The purpose of this study is to ascertain the extent and quality of theory and theoretical construct utilization among published empirical studies specific to self-care management research involving African-American men living with type 2 diabetes. **Materials and Methods:** Systematic literature review for peer-reviewed articles was performed. Articles with barriers, facilitators, masculinity, social support, mistrust, behaviors and decision making among this specific group were sought out. **Results:** Some studies mentioned a specific theoretical framework or model. However, 35 out of fifty studies did not report any use of theoretical framework or model. **Conclusions:** This paucity of theory utilization points to a breach in the quality of both qualitative and quantitative research in this area with is particular population of men. Researchers either failed to sufficiently use theory or did so but failed to specify how.

Key words: African-American men, constructs, theory, type 2 diabetes

INTRODUCTION

Diabetes mellitus is an extensive health complication that affects all racial and ethnic groups in the United States. Yet diabetes disproportionately affects African-American men and contributes to other leading causes of death such as heart diseases, cancer, unintentional injuries, strokes, and homicide, and was the sixth leading cause of death for African-American men in 2009.^[1,2] Type 2 diabetes accounts for 90-95% of all diabetes cases.^[3] Nationally, compared to non-Hispanic Whites, African-Americans have 2-4 times the rates of type 2 diabetes and associated kidney failure, blindness,

lower limb amputations, and amputation-related mortalities.^[3-5]

It is estimated that up to 85% of lower extremity amputations can be prevented through programs for preventing and treating foot ulcers, preventing reoccurrence of ulcers, and educating patients about proper foot care.^[6] Physicians, diabetes researchers, and health educators argue that complications of type 2 diabetes can be prevented because while it is a chronic condition, it is also manageable. Other researchers argue that type 2 diabetes is a complex

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disease to manage, especially as most of the care involves self-management.^[7] Self-management is defined as the knowledge and skills needed to perform self-care, manage crises, and make the lifestyle changes required to successfully manage a disease.^[8]

Regardless of severity or complexity, type 2 diabetes requires the patient to monitor and manage their own treatment. The current literature suggests that African-Americans are significantly less adherent to self-management recommendations than non-Hispanic Whites. This may account for the increased complications and mortality rates among this population.^[9] Yet, there is little information available to clarify the reasons for the low rates of treatment adherence among African-Americans. Given the disproportionate disease burden and complications among this group, it is important for stakeholders to understand factors which enhance or detract from successful self-management of this chronic condition.

The role of theory in understanding disease management behaviors

Theory provides insight into diverse psychosocial factors that contribute to and maintain health risk behaviors.^[10] Theories and their components (i.e., constructs) and processes (i.e., mechanisms or relationships among constructs) can provide insight into human behaviors as related to a variety of influential (or influenced) factors. Not only can we learn the “what,” but also the “why” which is guided by empirical work performed across various social and behavioral science disciplines. Women are more likely to engage in a broad range of preventive and health-promoting behaviors than men while men are more likely to engage in over thirty behaviors that have been shown to increase the risk of morbidity, injury, and mortality.^[11] A study conducted in 2000 found that men are more likely to engage in risky behavior, declining to take part in health-promoting activities, and claiming that high-risk behaviors (e.g., alcohol drinking) will not impair performance (e.g., driving) are often demonstrations of the norms of masculinity in the larger culture, and ways in which men construct and reinforce their masculinity.^[11]

Theories specific to gender may help us understand what contributes to these disparities, and theoretically-driven systematic inquiry should yield significantly to our understanding of chronic disease self-management. Presumptions about male masculinity and manhood may lead men to either take actions that do harm to them or to refrain from engaging in health-protecting behaviors. Efforts to redefine the cultural meaning of manhood in positive ways will require parallel changes in cultural

institutions and social structures to reinforce positive health behaviors in men over the life course.^[12] Yet there is insufficient indication that concepts of masculinity or race (or its interactions) are included or accounted for in health behavior research.

Questions about theory often arise when researchers begin to identify research questions that require more complex analysis and need to investigate deeper into their data to explore how illness and health care are conceived and practiced.^[13] In particular, what extent have theories and/or constructs specific to race and culture been utilized in diabetes self-care management (SCM) research with African-American men? To address the question, it becomes necessary to examine and determine how well theory and theoretical constructs, particularly those relevant to African-American men, have been applied and adopted in diabetes SCM research.

The research question driving this study seeks to clarify to what extent have theories and/or constructs been utilized in diabetes SCM research with African-American men. Thus, the aim of this paper is to assess the utilization of appropriate (i.e., culturally relevant) theories and/or constructs in diabetes self-management research among African-American men. A secondary aim is to identify factors – specifically barriers – most utilized in research specific to this area. After reviewing type 2 diabetes research literature pertaining to African-American men, research studies with this group have not clearly demonstrated how and why the sustained dietary modifications, blood sugar maintenance, and other self-management customs are not used as consistently as recommended. Therefore, there are not many studies that have analyzed the reasons or barriers for this deficit and or how those living with diabetes view the suggested lifestyle changes.

MATERIALS AND METHODS

The current investigation was conducted by first, conducting a systematic exploration of the research literature. This was followed by evaluating each article that meets the inclusionary/exclusionary criteria based on the following parameters utilized by a 2008 study.^[14] The analysis for this study adapted the Garrard’s matrix method^[15] to perform a comprehensive literature review. Therefore, the literature review and analysis helped to frame the methodology that is being used. A systematic search was performed to retrieve peer-reviewed articles addressing SCM among African-American men living with type 2 diabetes. Eight literature databases: Academic Search Complete (EBSCO), ERIC (EBSCO), ScienceDirect (Elsevier), MEDLINE

(Ovid), Cambridge Scientific Abstracts Databases (CSA), CINAHL, TOPICsearch, and PsycINFO-were searched using keywords such as type 2 diabetes management, self-care theory, African-American men and type 2 diabetes, and men’s health and type 2 diabetes. In addition, all reference sections were purled to ensure the inclusion of any articles omitted during the initial database search for relevant articles. In addition, all reference sections were purled to ensure the inclusion of any articles omitted during the initial database search for relevant articles.

Inclusionary and exclusionary criteria

Research publications meeting these criteria were included only if the article:

1. Was peer reviewed and published in English between 1996 and 2011,
2. Presented empirical studies (cross-sectional, focus groups, case-control, qualitative, quantitative, longitudinal, group randomized, quasi-experimental, and mixed methods) conducted in the United States, and
3. Investigated type 2 diabetes SCM among African-American men.

Theoretically driven empirical articles

Fifty articles were retrieved and screened for inclusion. Of this number, 49 of these studies were conducted in the United States. An extensive search of the literature databases revealed 31 empirical papers that met the inclusionary and exclusionary criteria. The one research study conducted outside of the United States was automatically excluded. The remainder of the 18 studies conducted in the United States did not address type 2 diabetes SCM among African-American men.

These research articles address other issues pertaining to African-American men such as male masculinity, medical mistrust, perceived body image, health decision-making, discrimination, health information seeking, knowledge of average blood glucose level, depression, fatalism, and fear of having diabetes and its related consequences. In summary, 31 published articles based on research conducted in the United States assessed type 2 diabetes SCM among African-American men.

Results: Scores of the studies and theoretical framework

Among the research articles, approximately 12 out of the fifty disclosed a theory and or constructs and how they were utilized. Table 1 shows specifically each scoring category and how many articles coincide with each category. Thirty-four of the fifty articles received a score of “0” (i.e., there was no evidence of theoretical basis driving the research). Two of the fifty articles received a score of “1,”

Table 1: Article scores and usage of theoretical framework or constructs

Criteria	Score	n
Clear identification/operationalization of theory/ constructs used	3	12
Use of theory, but inferred (not clearly identified)	2	2
Some evidence of use of theory/constructs	1	2
No evidence of theoretical basis driving the research	0	34

which indicates that the article provided some evidence of theory and use of constructs. Two of the articles received a score of “2,” which would have meant that there was use of theory, but that it inferred or not clearly identified.

Lastly, the remaining twelve articles all received a score of “3,” which meant that in that article, there was clear identification and operationalization of theory and/or construct use. The constructs used within the reviewed articles were operationalized through a one on one interview, focus group, questionnaire, survey, or predetermined period format. Table 2 shows the breakdown of whether or not a theory or constructs was found in each study. Table 3 below shows the theories, constructs, and models that were found in 12 of the research articles, in which some articles used more than one theory or construct.

DISCUSSION

After a review of literature, approximately 12 out of fifty articles were found to have clearly stated one or more particular theories within the methodologies section of the research article. Analysis of these publications revealed that most (n = 34) were not grounded in a theoretical framework of any kind. The authors of these research articles may have failed to clarify how a theory or theories were applied. While the average score for theory utilization was low (24%), the result may be due to several reasons such as a limited sample size of African-American men in the research study as compared to African-American women, a lack of trust in research or the researcher, confidentiality, lack of prior participation in research studies, or not being to utilize any particular theory that the researcher(s) felt comfortable in using to address SCM of type 2 diabetes.

Furthermore, the instruments used for analyzing these studies were not piloted or validated. As a result, measurement error is a possibility. Given the scarcity of theory utilization shown from Table 3 clearly translates that there is abundant breach of the “quality” of qualitative research as well as quantitative research. The quality of a research study will be influenced by how the researcher

Table 2: Scores of the reviewed studies

Study	References	Score	Study design	Theoretical framework
1	Skellely <i>et al.</i> (2008)	0	Literature review; intervention protocol	Symptom focused conceptual model
2	Polzer and Miles (2007)	3	Open-ended interviews	Grounded theory
3	Resnick <i>et al.</i> (1998)	0	Secondary data analysis	Not reported
4	McCleary-Jones (2011)	3	Descriptive correlational study	Health literacy framework; self-efficacy component of Bandura's social cognitive theory
5	Rosland <i>et al.</i> (2008)	0	Cross-sectional survey	Not reported
6	Peek <i>et al.</i> (2008)	1	Interview focus groups	Interview guides created based on theory of planned behavior, ecological model, and shared decision-making model
7	Anderson-Loftin and Moneyham (2000)	0	Focus group	Nursing care management model (major concepts: Sick care, health-making, nurse-client relationship)
8	Hendricks and Hendricks (2000)	0	Diabetes self-management classes; telephone method for follow-up	Not reported
9	Peek <i>et al.</i> (2011)	0	Cross-sectional survey	Not reported
10	DeWalt <i>et al.</i> (2007)	0	Cross-sectional survey	Not reported
11	Jacobs <i>et al.</i> (2006)	0	Focus group	Not reported
12	Chlebowy <i>et al.</i> (2010)	0	Focus group; Chi-square (SPSS)	Not reported
13	Tang <i>et al.</i> (2008)	0	Cross-sectional survey; observational design	Symbolic interaction theory
14	Sarkar <i>et al.</i> (2006)	3	Questionnaire; standardized Cronbach alpha	Self-efficacy theory
15	Wenzel <i>et al.</i> (2005)	2	Focus group	Not reported
16	Anderson <i>et al.</i> (1996)	0	Focus group	Not reported
17	Liburd <i>et al.</i> (2007)	0	In-depth interviews	Not reported
18	Baptiste-Roberts <i>et al.</i> (2007)	3	Cross-sectional	Health belief model
19	Thompson <i>et al.</i> (2009)	0	Focus group	Not reported
20	Becker <i>et al.</i> (2004) ^[18]	2	Based on three large qualitative studies that examined questions about daily management	Not reported
21	Polzer (2007)	3	Structured open-ended interviews	Grounded theory
22	Duru <i>et al.</i> (2009)	0	Case-control study	Not reported
23	Chesla <i>et al.</i> (2004)	0	Questionnaire; semi-structured follow-up interview	Not reported
24	Bayliss <i>et al.</i> (2003)	0	Semi-structured interviews	Not reported
25	Holmstrom and Rosenqvist (2005)	0	Provider/patient video recordings	Not reported
26	Carter-Edwards <i>et al.</i> (2004)	0	Focus group	Not reported
27	Onwudiwe <i>et al.</i> (2011)	0	Focus group	Not reported
28	Jones <i>et al.</i> (2008)	0	Group sessions	Not reported
29	Hooker <i>et al.</i> (2012)	0	Interviews	Not reported
30	Batts <i>et al.</i> (2001)	0	2 years study; three intervention visits	Not reported
31	El-Kebbi <i>et al.</i> (1996)	0	Focus group	Not reported
32	Egede and Bonadonna (2003)	3	Focus group	ISAS theory
33	Hammond and Mattis (2005)	0	Survey; Follow-up interviews	Not reported
34	Aljsem <i>et al.</i> (2001)	3	Cross-sectional, correlational study	Health belief model; self-efficacy concept
35	Hammond <i>et al.</i> (2010)	0	Cross-sectional analysis	Not reported
36	Hammond (2010)	1	Survey	Not reported
37	Liburd <i>et al.</i> (2007)	3	Semi-structured interviews	Not reported
38	Hammond <i>et al.</i> (2010)	3	Semi-structured interviews with an illness-narrative framework	Andersen behavioral model; theory of reasoned action
39	Skelly <i>et al.</i> (2006)	3	Semi-structured interviews	Kleinman's exploratory model of illness
40	Utz <i>et al.</i> (2006)	0	Focus group	Not reported
41	Baptiste-Roberts <i>et al.</i> (2006)	0	Cross-sectional analysis	Not reported
42	Fitzgerald <i>et al.</i> (2000)	2	Qualitative analysis	Not reported
43	Hart <i>et al.</i> (2009)	0	Quantitative analysis	Not reported
44	Heisler <i>et al.</i> (2005)	0	Cross-sectional analysis	Not reported
45	Fisher <i>et al.</i> (2004) ^[19]	0	Cross-sectional analysis	Not reported
46	Bhattacharya (2012)	3	Semi-structured interviews	Self-determination theory; grounded theory
47	Anderson-Loftin <i>et al.</i> (2005)	0	Longitudinal experimental	Not reported
48	Walker <i>et al.</i> (2010)	0	Quasi-experimental intervention	Health promotion model; transtheoretical model
49	Samuel-Hodge <i>et al.</i> (2009)	0	Group randomized. Multi-site trial	Not reported
50	DeCoster and Cummings (2004)	0	Exploratory research design	Not reported

SPSS: Statistical Package for the Social Sciences

Table 3: Theoretical frameworks and constructs that were clearly stated and found in articles

Anderson behavioral model
Grounded theory
Health belief model
Health literacy framework
Health promotion model
Kleinman's exploratory model of illness
Nursing care management model
Self-determination theory
Self-efficacy theory
Social cognitive theory
Symbolic interaction theory
Symptom-focused conceptual model
Theory of planned behavior
Theory of reasoned action
Transtheoretical model

attends to theoretical concerns at different stages of the research. Theory can inform qualitative research design and analysis, and theory can also be developed from qualitative analysis.^[16] Theoretical considerations play a part at all stages of the research process though this often not made explicit.^[13]

The findings from this investigation indicate that some diabetes researchers are:

1. Failing to use theory and constructs in directing research;
2. Using theory superficially; or
3. Using theory fully, but failing to be specific and clear about the distribution of the findings.

For these reasons, one could argue that the progress toward improving application and utilization of theory into type 2 diabetes SCM research involving African-American men is still delayed, but is obtaining support in the research literature.

As previously stated earlier in this manuscript, the role that the theoretical framework has in research of any kind is to assist the reader in making logical sense of the relationships of the variables and factors that have been deemed relevant and substantial to the problem at hand. In a sense, theory provides definitions of the relationships between the variables so that the reader can understand the theorized relationships between them. The use of theory makes it possible for researchers to understand, and to translate for policy makers and health care providers, the processes that occur beneath the visible surface and so to develop knowledge of underlying principles.^[17] Above all, theory can help people move beyond individual insights gained from their professional lives to a situation where they can understand the wider significance and applicability of the phenomena.^[17]

Being explicit about the role of theory is part of being transparent to others regarding research design and the analytic process and it is also an important consideration in producing good quality research.^[13] The depth and detail of analysis depend upon the focus of the research and available resources, such as time, level of experience and training of the analyst and access to expert advice. The benefit of greater attention to theory in qualitative research is that it enables a more sophisticated approach to the data so that a range of different questions can be asked of the data set.^[13]

Finally, the application of theoretical frameworks in future research studies would lead researchers to identify the underlying issues associated with how African-American men positively or negatively self-manage type 2 diabetes. While reading and review each article, several major categories of barriers SCM were identified: Shared decision-making among African-Americans with diabetes, social support from family and friends, the role of spirituality in SCM, trust and distrust in physicians, masculine role identity factors, and patient perceptions about barriers to SCM. Further research should focus on most common barriers that identified by African-American men living with type 2 diabetes and how those barriers may have a negative impact on SCM. Some barriers, if addressed, may be pliable to interventions that could advance health outcomes.

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There are no conflicts of interest.

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