



Original Research

Perceptions of Physical Activity in African American Older Adults on Hemodialysis: Themes From Key Informant Interviews



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Abstract Objective: To determine key themes underlying the perceptions of older (≥ 65 y) adults on hemodialysis regarding physical activity using qualitative methodology.

Design: Semistructured key informant interviews.

Setting: Academic medical center.

Participants: Convenience sample of older adults on hemodialysis (N=10).

Interventions: None.

Main Outcome Measures: Interview transcripts were coded and analyzed using the framework method to extract themes and subthemes. Participants also answered Likert statements regarding their perceptions of physical activity, and the responses were tallied.

Results: Ten older adults on hemodialysis participated (mean age 73 ± 5 y; 60% women); all were African American. All participants stated physical activity would make them feel better.

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The major themes that emerged were barriers and facilitators. Facilitators included internal motivators, family and friend support, and feasibility of incorporating physical activity into routine activities. Barriers were lack of motivation, health issues, and environmental restrictions.

Conclusions: Physical activity potentially could prevent the physical decline commonly seen in older adults on hemodialysis. Yet information regarding the perceptions of this population toward physical activity is sparse. Although the study is limited by selection bias, our study presents qualitative evidence that black older adults on hemodialysis desire physical activity for their health. Future interventions to increase physical activity in this population should consider leveraging existing facilitators, such as the support of family and friends, and use strategies to address barriers like minimal motivation.

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The number of older (≥ 65 y) adults on hemodialysis is skyrocketing. Over half of the persons initiating hemodialysis in the United States is older.¹ Many are weak² because kidney failure is associated with muscle catabolism and atrophy.³ Persons on hemodialysis walk 25% more slowly than age-matched persons without kidney disease.⁴ Persons on hemodialysis cite that reducing this physical decline should be a research priority.⁵

A potential intervention for the physical decline of older adults on hemodialysis is physical activity.⁶⁻¹⁰ There are physiologic and psychosocial benefits. Blood pressure,¹¹ lipid metabolism,^{12,13} and insulin sensitivity improve¹⁴ with more physical activity. Psychosocial benefits include less depression and anxiety, a sense of independence, and improved well-being and quality of life.¹⁵ Just 10 more minutes of daily physical activity reduces mortality by 22% in persons on hemodialysis over a 7-year period.¹⁶

The initial goal of the study was to investigate the perceptions of physical activity in the overall population of older adults on hemodialysis. Our use of a convenience sample study design yielded a sample that was entirely African American. While a few studies have examined the barriers to physical activity in the older adults on hemodialysis,¹⁷⁻²¹ investigations highlighting the experiences of older African Americans are lacking. Yet African Americans make up over 30% of the population on incident hemodialysis in the United States.²² Given the lack of data for African Americans, we accepted the sample bias and revised the study goal to the investigation of the perceptions of physical activity in African American older adults on hemodialysis. Such information will be essential toward designing interventions to increase the physical activity of African American older adults on hemodialysis.

Methods

Study sample

A convenience sample of older adults on hemodialysis was recruited from an academic medical center located in the northeastern United States. This study design was selected to facilitate recruitment within a short period because

financial support for the study was minimal. Physicians in nephrology and geriatrics at the medical center identified potential participants. Inclusion criteria were age 65 years or older, English fluency, receiving outpatient hemodialysis, and a primary care provider affiliated with the medical center (confirmed through the electronic medical record). Persons were contacted without regard to race.

Between November 1, 2015, and March 31, 2016, introductory letters ([supplemental appendix S1](#), available online only at <http://www.archives-pmr.org/>) were mailed to 40 persons. One was returned for nonvalid address. Investigators then telephoned persons to inquire about interest. Mail and telephone communications were chosen because information about access to other modalities (eg, e-mail) was unavailable. Four persons lacked valid phone numbers, and 3 lacked voicemail. One had died, and another was hospitalized. Of 21 persons reached, 3 were excluded because of language. Eleven persons were interested and eligible. One person did not return calls to schedule. Recruitment was completed after 10 participants because analysis revealed that thematic saturation, meaning no new themes emerged after review of all of the data, had been achieved.

The Boston University Medical Center Institutional Review Board gave approval and permitted verbal consent by participants because the study was exempt and carried minimal risk. Participants were compensated with a \$25 gift card to a local merchant.

Study design

Between December 1, 2015, and March 31, 2016, semi-structured key informant interviews 30-40 minutes long were conducted in participants' homes, facilitated by D.A. or C.L., who are physicians. If requested by the participant, family also participated in the interviews. The investigators developed a de novo interview guide ([supplemental appendix S2](#), available online only at <http://www.archives-pmr.org/>) based on literature regarding physical activity in (1) persons on hemodialysis,^{15,16,19,20,23-25} and (2) community-dwelling older adults.^{26,27} Participants were queried about physical activity on dialysis and nondialysis days and what factors motivated or hindered physical

activity. Participants were given Likert-style statements querying their perceptions of physical activity (supplemental appendix S3, available online only at <http://www.archives-pmr.org/>). Interviews were audiotaped, professionally transcribed, and identified using alpha-numeric labels. Because of time constraints, transcripts were not returned to participants for correction.

Data analysis

Transcripts were analyzed using the framework method,²⁸ an approach well-suited for health qualitative studies using semistructured interviews.²⁹ Six investigators participated in analysis; their backgrounds were geriatric medicine, internal medicine, public health, and research administration. Four have advanced degrees. After initial review of transcripts (eg, familiarization), investigators descriptively coded transcripts³⁰ using an initial codebook (supplemental appendix S4, available online only at <http://www.archives-pmr.org/>) derived from the interview guide. This provided a preliminary framework for analysis. From November 2016 to May 2017, investigators convened to define and review emerging codes and revise the framework. Once all transcripts were coded, the analytical framework was finalized through consensus. Each transcript was coded again using the final framework. Using an inductive approach, all investigators participated in iterative deliberations to organize the codes into themes and subthemes during multiple in-person meetings, facilitated by C.L. and S.F. We judged thematic saturation was achieved when no new themes emerged after review of all coded data.³¹

Quotations were selected to illustrate findings but were not linked to participant characteristics because of privacy concerns. Interrater reliability was confirmed with a kappa coefficient ≥ 0.8 . NVivo 11^a (qualitative analysis software) facilitated analysis.

The Likert-style statements had 5 responses: completely agree, somewhat agree, neither agree nor disagree, somewhat disagree, and completely disagree. On review, we found that none of the participant responses included the neither agree nor disagree option. Responses were collapsed into categories of agree or disagree. The number of responses for each statement was tallied, and frequencies were calculated from the total number.

Results

Characteristics of study sample

Table 1 presents the characteristics of the sample. The sample was predominantly female, and all were African American. Most had some degree of high school education, and 1 participant attended junior college.

Likert statements about physical activity

All participants agreed with the statement that physical activity would make them feel better (table 2). Most agreed that they desired more physical activity, and achieving it

Table 1 Characteristics of participants (N=10)

Characteristics	Value
Age (y), mean \pm SD	73 \pm 5.0
Female, n (%)	6 (60)
African American, n (%)	10 (100)
Years of education, mean \pm SD	10.3 \pm 2.7
Time on hemodialysis (y), mean \pm SD	4.8 \pm 4.5

was feasible without help. Notably, only 1 participant agreed that persons on hemodialysis were not supposed to do physical activity. Six participants expressed a willingness to do physical activity for at least 30 min/d 3 days a week, while 2 were willing to do so 2 days a week. Two participants said they could do such activity only once a week or less.

Themes from key informant interviews about physical activity: facilitators and barriers

We identified 2 major themes, facilitators and barriers, each with related subthemes.

Facilitators

Internal motivators

There was recognition that the lack of physical activity was detrimental to health. Seven participants said they tried to do regular physical activity, such as taking walks inside their building. Eight individuals reported intrinsic motivation as a facilitator, with sources including the wish to walk again, the desire to live, and religious faith (table 3).

Family and friend support

The support of family and friends was found to be a key facilitator for 7 participants. For example, family members would often verbally encourage participants to walk and leave the house. Socialization with neighbors similarly promoted physical activity. For 1 participant, the importance of her spouse as an enabler was emphasized after he died: "We were doing things together. But now when it's just me I don't have anybody like him. He would always

Table 2 Likert statements about physical activity (N=10)

Statement	Agree (n)	Disagree (n)
I think getting up and moving can make me feel better	10	0
I want to get up and move more	9	1
Getting up and moving is easy to do	8	2
I need something or someone to help me get up and move	3	7
Hemodialysis patients are NOT supposed to get up and get moving	1	9

Table 3 Facilitators of physical activity: subthemes

Subtheme	Quotations
Internal motivators	<ul style="list-style-type: none"> • “Don’t like laying around, bed makes you weak” • “[I want] to run around this block, my biggest thing is to be able to walk again” • “I mean the only way I’m going to get out of this chair is to get up and start moving around. If I sit here it’s just going to get harder and harder for me to do, so I have to try, I have to try”
Family and friend support	<ul style="list-style-type: none"> • “Life motivates me to get moving... I love living” • “God makes it easy for me to move” • “Once in a while my daughter, we go out to a movie or we go out to dinner, and sometimes on the weekend I have three grandbabies that want to stay with me” • “We go out walking, walking around sometimes, me and her [goddaughter], walking around the parking lot and stuff.” • “I walk downstairs, go to the mailbox and say hi to people that is down there, and then come back upstairs”
Feasibility of incorporating into routine activities	<ul style="list-style-type: none"> • “I’ll go to the grocery store, walk around there for a while, and go shopping” • “[He] walks to hemodialysis and walks back so that gets him exercise. Moves for about 15-20 minutes, takes his time” • “It would be good if there was something to do after hemodialysis” • “I socialize at my day care, have been going there for years to see my friends” • “I go to day care twice a week and use the exercise machines there”

kind of like motivate me to do something and I would be trying to get up, get dressed.”

Feasibility of incorporating physical activity into routine activities: Seven participants described how they turned necessary tasks, such as grocery shopping, into opportunities for physical activity. Household chores, such as dusting, was cited by 2 participants as a source of physical activity. One participant was employed and walked to her job, which was several blocks away. To facilitate physical activity, participants suggested the physical activity sessions at the hemodialysis center or their apartment building. Others described how they used the equipment at adult day care, which they already attended, to facilitate physical activity.

Barriers

Lack of motivation

For 6 participants, a subtheme was a lack of motivation, as shown in Table 4. The lack of a motivator, either external or internal, was perceived as an often insurmountable hurdle.

Effect of medical conditions, especially pain

Medical conditions were a barrier for 5 participants. Although the interview guide did not have questions about pain, 5 participants independently cited pain as a limitation. Dizziness was another barrier; 1 participant stated he/she often rested to relieve dizziness. One participant was blind and felt uncomfortable without his wife nearby.

Environmental restrictions

Physical accessibility and local weather played a major role for 4 participants. One participant cited the difficulty of stairs; 2 cited uneven sidewalks as barriers. Weather was

also a common concern because the participants lived in an area with frequent snowfall, causing slippery walkways.

Discussion

We undertook this study to understand the perceptions of older adults on hemodialysis regarding physical activity. In our sample, which was entirely African American, we found that most participants understood the benefits of physical activity and were willing to undertake it multiple times a week. The main facilitators to physical activity were internal motivators, family and friend support, and feasibility of incorporating physical activity into routine activities. The main barriers to physical activity were lack of motivation, medical conditions, and environmental restrictions.

All of our participants were African American. Being African American was not an inclusion criterion, so this was unanticipated. In retrospect, this was likely because of selection bias from the study design. Recruitment focused on a single academic center, which has a sizable African American population. The approach limits the generalizability of the results. However, there are proportionally 3 times more African Americans than white persons on hemodialysis,¹ and the racial disparities are often associated with differences in health care quality.^{22,32} Thus, we are capturing the perspectives of a group that is highly affected by hemodialysis.^{22,32-34}

Our findings complement Moorman et al, who also studied older adults on hemodialysis in Canada (10% were African American) but did not focus on a specific racial group.²¹ We similarly found that our participants were familiar with the benefits of physical activity and that medical conditions are a key barrier. Our results were also similar to a study by Jhamb et al, who studied a somewhat

Table 4 Barriers to physical activity: subthemes

Subtheme	Quotations
Lack of motivation	<ul style="list-style-type: none"> • "I don't have anything to motivate me to say, well let's get up and do this. Let's go take a walk" • "I feel like I'll get up later, I'll get up in a few minutes. I keep laying there"
Medical conditions	<ul style="list-style-type: none"> • "My back pain and knee pain prevent me from moving, regardless of whether I have hemodialysis" • "I feel lightheaded, and if I feel, if I get up and feel lightheaded I just sit back down and wait a few minutes, and then I get up and try it again"
Environmental restrictions	<ul style="list-style-type: none"> • "I don't go to people's houses unless I know what kind of step they have" • "I don't do too much outside walking when there is ice on the ground"

younger sample (mean age, 60.1y). They found that the support of family and friends as well as feasibility were facilitators for physical activity.²⁰ Other studies of persons on hemodialysis have also demonstrated internal motivation is key.^{15,20} While our focus was African Americans, our results are consistent and thus may still have relevance for the broader population of older persons on hemodialysis.

Our finding that environmental restrictions are barriers is notable. Examples include steps or stairs. Future interventions may also want to consider including home modifications to overcome such limitations.³⁵ Our participants cited snow and ice as barriers. Yet the effect of winter conditions on mobility has not been well studied. A review found only 24 relevant articles,³⁶ with only 1 study focused on older adults.³⁷ While not all settings have snow, the effect of inclement weather should be considered in any interventions for physical activity. For example, an intervention based in the home is one way to address the threat of inclement weather.

Our findings complement studies conducted with African American cancer survivors about their perceptions of physical activity. Stolley et al found in African American breast cancer survivors the support of family and friends facilitated physical activity, while pain and weather were cited as barriers as well.³⁸ Lack of self-motivation was a theme in African American survivors of breast or endometrial cancer.³⁹ Although these studies focus on female African Americans with cancer, the commonalities suggest such themes may be important for African Americans who are seriously ill.

In the study by Delgado et al, which researched persons on hemodialysis in the San Francisco Bay area, 38% reported pain as a barrier to physical activity.¹⁸ Their sample was 30% African American. In contrast, half of our sample cited pain as a barrier to physical activity. While our finding certainly needs to be confirmed with a larger study, it suggests that untreated pain may be more common in African American older adults on hemodialysis. Historically, pain is undertreated in African Americans.⁴⁰ While the differences in pain management may be unrelated to race, more investigation is needed before this determination can be made.

Added to this picture is evidence that African American older adults are more sedentary⁴¹ and are nearly twice as likely to have limitations in activities of daily living.⁴² Together the data from our study and others support the need for a larger study to explore the facilitators and

barriers to physical activity in African American older adults on hemodialysis and how these issues may intersect with racial disparities, as we have suggested with pain management. Such data will help determine what components are needed for an intervention to increase physical activity for African American older adults on hemodialysis.

Study strengths

Strengths of this study include the focus on African Americans, a group that is disproportionately represented in the population on hemodialysis^{22,32-34} but underrepresented in research.⁴³ We used key informant interviews, allowing us to gather nuanced information. Moreover, incorporation of "patient voice" has been a priority for nephrology⁴⁴ and the wider medical community.⁴⁵ Our choice of qualitative design facilitated inclusion of the perspectives of an underserved population, including the use of quotes to illustrate our findings.

Study limitations

Only African Americans were enrolled, likely because of the convenience sample study design and the accompanying selection bias. This limits the generalizability of our findings and restricts the range of voices represented. Although the majority of persons contacted were eligible, the resulting sample of 10 was modest, suggesting volunteer selection bias. The sample size also limited the correlation of individual quotes with participant characteristics because of privacy concerns. We also acknowledge that while the sample size may have negatively affected achievement of thematic saturation, the analysis did not find evidence of this, and prior literature has demonstrated saturation is feasible with modest samples.⁴⁶ Recruitment of more participants would have confirmed saturation. Because of funding limitations, we chose not to pursue this strategy. Moreover, we lacked information on several potentially relevant factors, such as home setting (eg, assisted living or private home), caregiver support, individual mobility limitations, certain comorbidities (eg, amputation), or transportation access. Such factors likely affect individual perceptions of the feasibility of physical activity. For example, the typically wide hallways in assisted living can facilitate physical activity by providing a place to walk.

Conclusions

Increasing physical activity is a potential strategy to improve the physical decline often seen in older adults on hemodialysis. A key step to implementing interventions that increase physical activity is assessment of perceptions of physical activity. In this study, African American older adults on hemodialysis identified the following barriers to physical activity: lack of motivation, medical conditions, and environmental restrictions. Such barriers could be in part because of racial disparities of the health care system, and next steps should include studies of larger size to delineate the effect of these issues. Despite the barriers, our sample demonstrated that African American older adults on hemodialysis want to increase physical activity. They identified internal motivation, family and friend support, and feasibility of physical activity as facilitators. As future interventions are designed to increase physical activity in this population, they should consider using strategies that capitalize on these facilitators to be effective.

Supplier

a. NVivo 11; QSR International, Inc.

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