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Self-management of multiple chronic conditions among African American women with asthma: A qualitative study

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Abstract

Objective—African American women are disproportionately burdened by asthma morbidity and mortality, and may be more likely than asthma patients in general to have comorbid health conditions. This study sought to identify the self-management challenges faced by African American women with asthma and comorbidities, how they prioritize their conditions, and behaviors perceived as beneficial across conditions.

Methods—In-depth interviews were conducted with 25 African-American women (mean age 52 years) with persistent asthma and at least one of the following: diabetes, heart disease, or arthritis. Information was elicited on women's experiences managing asthma and concurrent health conditions. The constant-comparison analytic method was used to develop and apply a coding scheme to interview transcripts. Key themes and subthemes were identified.

Results—Participants reported an average of 5.7 comorbidities. Fewer than half of the sample considered asthma their main health problem; these perceptions were influenced by beliefs about the relative controllability, predictability, and severity of their health conditions. Participants reported ways in which comorbidities affected asthma management, including that asthma sometimes took a 'backseat' to conditions considered more troublesome or worrisome. Mood problems, sometimes attributed to pain or functional limitations resulting from comorbidities, reduced motivation for self-management. Women described how asthma affected comorbidity management; e.g., by impeding recommended exercise. Some self-management recommendations, such as physical activity and weight control, were seen as beneficial across conditions.

Conclusions—Multiple chronic conditions that include asthma may interact to complicate self-management of each condition. Additional clinical attention and self-management support may help reduce multimorbidity-related challenges.

Keywords

multimorbidity; comorbidity; chronic disease; women's health; health disparities

Introduction

Multimorbidity and asthma management

The prevalence of multiple chronic conditions (MCCs) is increasing in the U.S. population (1). Managing a single chronic illness is often challenging for patients; managing multiple conditions is even more so. Across qualitative studies representing diverse health conditions, populations, and settings, several challenges have consistently been described by patients with multiple chronic conditions. These include experiencing interactive effects of conditions, juggling multiple medications and health care providers, dealing with complexity and conflicting recommendations in self-care regimens, and coping with negative emotional states. (2–9). How patients manage asthma in the context of multimorbidity, however, has been the subject of limited research. It is possible that asthma management behaviors, including adhering to prescribed medications and careful monitoring of triggers and symptoms, are compromised by competing health issues—and that poorly-managed asthma, in turn, may interfere with optimal management of other chronic conditions. Learning more about self-management processes may inform strategies to improve asthma management in the face of competing health issues.

Asthma and multimorbidity among African American women

The topic of managing asthma along with coexisting chronic conditions is particularly salient among African American women. Race and gender disparities place this group at high risk for poor asthma outcomes. For example, African American adults fare worse than their Caucasian counterparts on indicators of asthma prevalence (10), morbidity (11), hospitalizations and ED use (12–13), quality of medical care (14), appropriate medication use (15) and mortality (16). These disparities are likely rooted in factors linked to both poverty and race (14, 17–19). Asthma-related gender disparities also exist, such that women have higher asthma prevalence than men, more severe disease, and greater health care use (10, 20–23). In addition to these well-documented asthma disparities, it is also likely that African American women with asthma are disproportionately affected by MCCs. African Americans have a higher prevalence of MCCs than other racial/ethnic groups (24), and women are more likely to have MCCs than men (25). Common chronic conditions requiring daily management such as diabetes, hypertension, and stroke are all more prevalent in African Americans than in Whites (10).

Goals of study

African American women are thus both vulnerable to poor asthma outcomes and likely to be managing other conditions in addition to asthma. The goal of this study was to gain an in-depth understanding of how African American women with asthma perceive their experience of managing multiple chronic conditions. Therefore, qualitative research methods were used in order to allow this group of women to share their perceptions and

experiences in their own words. This methodology was also appropriate given the lack of prior research on this topic that could inform specific hypotheses or quantitative measures of the multimorbidity experience among people with asthma (26, 27). Specific research questions guiding the study were:

1. Which factors determine how African American women with asthma and other chronic conditions perceive the relative importance of their health problems?
2. What are the ways that comorbidities or their management exacerbate asthma symptoms or interfere with asthma management?
3. What are the ways that asthma symptoms or management exacerbate comorbid conditions or interfere with their management?
4. Which self-care behaviors are perceived by patients as beneficial across multiple conditions, including asthma?

Methods

Sample

The 25 women who were interviewed for this qualitative study were participants in a larger randomized controlled trial (RCT) of a telephone-based asthma-management intervention for African American women, “Women of Color and Asthma Control” (28). All RCT participants were ambulatory, non-institutionalized women age 18 and over, who self-identified as African American. The University of Michigan Institutional Review Board approved both the RCT and the qualitative substudy that is the focus of this report. In order to participate in the qualitative study of multimorbidity, participants had to report a physician diagnosis of one or more of the following conditions in addition to asthma: Type 2 diabetes, heart disease (i.e., arrhythmia, angina, prior myocardial infarction, congestive heart failure, and/or valvular disease *and* taking daily heart medication), or arthritis requiring daily medication (over-the-counter or prescription) for at least one year, or report a significant effect of arthritis on daily functioning. These particular comorbidities were selected because they are highly prevalent conditions that require daily management. RCT participants who appeared to meet these criteria based on responses to an earlier survey were invited to be screened for eligibility to participate in the qualitative study. A target sample size of 25 was selected based on similar qualitative studies about chronic illness self-management, and a quota sampling procedure was used such that we continued to invite eligible individuals to participate until we reached the desired number. A total of 41 individuals were initially contacted about the qualitative study via letter. Upon subsequent telephone screening, 5 were determined ineligible due to not fully meeting criteria for comorbid illnesses; 8 could not be reached for a telephone screening; 1 refused; 1 failed to attend the interview; and 1 dropped out of the RCT before telephone contact could be made.

Data collection

A semi-structured interview protocol was developed based on a literature review of qualitative studies about 1) managing MCCs and 2) chronic disease management among African American women. Sections of the protocol were guided by relevant theoretical

frameworks, including social support (29) and resilience (30); however, no framework or model could be found that specifically addressed multiple-disease self-management. The draft protocol was reviewed by an allergist specializing in the care of asthma (GMS) and a doctoral-level social worker (BWN) with many years of experience working in the African-American community with individuals with chronic disease. An earlier version of the protocol was pilot-tested with 3 African American women with MCCs, and subsequently revised. The final version of the protocol consisted of six sections: daily illness management experience, illness prioritization; symptom experience and management, social context of illness management, positive illness management experiences, and health care providers and services. Each of these sections included items to elicit qualitative information about the management and effects of MCCs.

All interviews were conducted by two researchers, one of whom was race-concordant with respondents. All of the interviewers had experience working with African American women in a community and/or research setting. Interviews were conducted in person, either in participants' homes (n=15) or in a public location (e.g., library) chosen by participants (n=10). Average interview length was 68 minutes.

Data analysis

Qualitative analysis—Digital audiofiles of the interview sessions were transcribed verbatim, with accuracy of all transcripts verified by the lead researcher. Two researchers (MRJ and KRE) devised and refined the coding scheme. Per Samuel-Hodge et al. (31), this scheme was initially designed deductively, from the study questions and interview topics. Refinements occurred inductively, based on the data collected. Therefore, the final coding scheme consisted of a combination of *a priori* and emergent codes (26). NVivo 10 was used to facilitate data management and analysis. To address the research questions regarding self-management of MCCs, the analysis focused on the overarching themes of “Illness Prioritization” (Research Question (RQ) 1) “Mutual effects of asthma and comorbid illnesses” (RQs 2 and 3), and “Health behaviors benefiting multiple conditions” (RQ 4). Themes relating to patient-provider interactions, social support, and medication use were explored but are not the focus of this paper.

Descriptive statistics—Data from the baseline telephone interview conducted as part of the “Women of Color and Asthma Control” RCT were used to describe the socio-demographic (age, education, income, marital status, and health insurance coverage) and health characteristics of the 25 qualitative study participants. Participants were asked whether they had any of the following medical problems: hypertension, diabetes, heart disease, arthritis or joint problems, cancer, gastroesophageal reflux disease, atopic dermatitis or eczema, recurrent pneumonia, chronic bronchitis, depression, anxiety, bipolar disorder, schizophrenia. Up to 4 “other” conditions were elicited with open-ended questions. Asthma control was calculated according to National Asthma Education and Prevention Program (NAEPP) guidelines (32) and categorized as well-controlled, not well-controlled, or poorly controlled. Participants were asked “Do you currently smoke cigarettes?” Body mass index (BMI) was calculated based on self-reported weight and height. Finally, respondents were asked how frequently in the past 12 months they engaged in exercise such as “running,

walking, swimming, playing tennis, weight lifting, or aerobics” and responses were categorized into a) once per week or more often and b) less often than once per week.

Results

Sample characteristics

As shown in Table 1, the mean age of the sample was 52 years (range 20–63). Participants reported an average of 5.7 chronic conditions in addition to asthma. The educational background of the sample varied widely. While about half the sample had some college or vocational training, 2 women did not have a high school diploma, and 4 had a post-graduate degree. Almost half the sample reported an annual household income of \$10,000 or less. About two-thirds of the women in this sample were single. Only 3 women were current smokers, and 18 reported exercising once/week or more often. All respondents reported being covered by one or more types of health insurance (not shown in Table): about half reported having at least some private insurance coverage (n=12), half were covered by Medicaid (n=13), and about a quarter (n=6) received Medicare benefits. About half the sample had “not well controlled” or “poorly controlled” asthma. In the sections below, self-reported health conditions for a given participant are listed alphabetically following a quotation from that participant.

Research question 1: Illness prioritization—Participants were asked to talk about which of their chronic conditions seemed most important or worrisome, and why. Fewer than half of the women named asthma as a top priority, either alone or in combination with one or more other conditions. Approximately a third of interviewees were not able to designate a single illness in this way and instead named two conditions or even “all of them.”

Well, I’m concerned about this cough a lot. I want my heart to hurry up and heal up. I’m concerned about the fibromyalgia. I’m concerned about my heart, so they breaking even. (*age 62; anxiety, arthritis, asthma, gastro-esophageal reflux disease (GERD), heart disease, hypertension, and three others*)

This participant and other similar participants found it difficult to choose one health problem to prioritize because their concerns were spread across more than one of their chronic conditions.

Participants who were able to prioritize their conditions were asked to explain why they chose as they did. Several consistent themes could be distilled regarding the dimensions of chronic conditions that affected their prioritization. These were controllability, predictability, and severity. Generally, a condition was seen as more important or worrisome if it was less controllable, less predictable, and more severe in terms of potential health consequences. For example, one woman commented on the difficulty she had controlling her asthma relative to her other conditions, and how the resulting symptoms diverted concern away from her other health issues:

My blood pressure, my depression, I normally can have them under control if I just take my medication. Now, my asthma, now that is what normally gets out of

control. When my asthma kicks in, I don't be concerned about my back or my arthritis, or anything. (age 47; anxiety, arthritis, asthma, chronic bronchitis, depression, hypertension, and two others)

Another woman was most concerned about her diabetes because of the possibility of severe long-term consequences:

First off, I already have bad eyes, so I can't afford to lose what I have. You know, I don't want to have none of my limbs missing or go into kidney failure because I've had friends that have had, you know, kidney failure, and they both have been on dialysis, because it's not pleasant at all. (age 60; anxiety, arthritis, asthma, depression, diabetes, hypertension, and one other)

Her prioritization of diabetes was based upon a desire to prevent a worsening of a current health issue (eyesight) and the challenges she witnessed in others whose diabetes was not well-controlled. Another respondent, however, prioritized asthma over diabetes because she was confident in her ability to manage diabetes, but less confident in her ability to manage asthma due to its unpredictability:

...the diabetes is no big one for me because of being a nurse and I took [care of] a lot of the patients, so I did a lot of the teaching and that kind of stuff, so I know this. So...but the asthma kind of comes out of the blue. You know, like, something can happen and (*makes a wheezing sound*) you know, all of a sudden, you're not breathing. (age 55; arthritis, asthma, depression, diabetes, and three others)

Research question 2: Effect of comorbidities on asthma—Women were asked to give examples of ways in which their other health conditions made it difficult to take care of asthma, or otherwise affected their asthma. About two-thirds of the sample (15 out of 25) described one or more pathways by which comorbid conditions affected asthma and asthma management. These are summarized in Table 2.

Asthma takes a backseat: Some women talked about how asthma management sometimes takes a “backseat” to other conditions, especially during asymptomatic periods. As one respondent described:

I think it [diabetes] makes me lose sight of my asthma until something, you know, until I can't breathe or it's hot out or something. (age 54; asthma, diabetes, GERD, and one other)

She went on to explain that before she was diagnosed with diabetes, she used to measure her peak flow regularly, but now hardly knows where her peak flow meter is.

Cognitive problems (mood or memory) are a barrier to asthma management: Several women talked about how their mood problems interfered with management of asthma and other conditions. For example, one person explained how she missed appointments with her pulmonologist because of depression.

Several respondents also mentioned that memory problems made it hard to adhere to their asthma management plan; for example, one woman said she was told to call her doctor if she

used her rescue inhaler a certain number of times per day, but because of her memory problems she had a hard time remembering if it was “the first time or second time, or did I use it two times yesterday or none yesterday?”

Pain and mobility limitations have direct and indirect effects on asthma and asthma

management: Several women described pain or mobility limitations resulting from comorbid conditions as interfering with the physical tasks involved in asthma management, such as housecleaning, or even inhaler use, as described by one woman:

Or, you know, even something little like, OK, you can't use this arm, so how are you going to use the inhaler, or, you know, find your medicine in a hurry? (age 53; anxiety, arthritis, asthma, and eight others)

Respondents' comments also suggested an indirect effect of chronic pain on asthma management via depressive symptoms. Many women in the sample experienced chronic and sometimes debilitating pain from one of their comorbid conditions. This pain and the constraints it placed on functioning sometimes resulted in mood problems that could sap motivation for self-management of asthma and other conditions. This is exemplified in the following comment:

Sometimes [the pain] can get so bad for you until there's times when you just don't feel like you want to do things that you should be doing, that even feels like there's – you feel hopeless sometime. I think that, um, and that would keep you from being able to manage other things that's going on with you, if you get to the point where you're, like, depressed about it. (age 62, anxiety, arthritis, asthma, depression, diabetes, GERD, hypertension, and two others)

Another woman spoke of the pain-depression cycle as triggering asthma symptoms:

If you, you don't feel good. You're in pain. Then you don't want to do nothing, and that triggers the depression, which triggers the asthma, which is just a big circle. (age 46; anxiety, arthritis, asthma, depression, GERD, hypertension)

The burden of multiple medications reduces medication adherence: Many women spoke of the practical and psychological burdens inherent in taking the numerous medications that are typically part of the daily routine for individuals with MCCs. In some cases, this burden appeared to contribute to their decision not to fully adhere to their medication regimen. For example, one woman, who was on an estimated 15 regular medications, described how she 'rebelled' against her medication regimen by not taking her asthma controller medication as often as she should:

And I'm finding I'm taking my Advair as, you know, as I need it. I should be taking it every day. (Interviewer: Are you supposed to take a puff in the morning and a puff at night or just—) Yeah. (Interviewer: So, you forget, like, one of the two?) I call it rebellion. I rebel. (age 44; anxiety, arthritis, asthma, depression, and two others)

Women have difficulty in distinguishing asthma symptoms: Finally, some women had a difficult time distinguishing asthma symptoms from those of comorbid conditions, both physical and psychological:

Like feeling like there's no more breath to breathe. Like my chest is caving in or like an elephant is sitting on my chest...just like maybe somebody strangling me or it just, I mean, those things, that's what I feel with, with the asthma, but it also could be from, the connective tissues around the chest wall. Things that it's not visible unless you do some kind of test or something like that. But that is something that still concerns me because every time I have a flare, I have chest pain. Every single time. (*Interviewer: A flare of asthma or a flare of—*) A flare of whatever it is. (laughs) I'm not quite – it's hard to pinpoint, like I said, what it is. (*age 34; anxiety, arthritis, asthma, depression, and four others*)

Another woman described not being able to discern if her symptoms were caused by her anxiety issues or because her asthma was “being really weird.” She thought at the time it was her asthma but later found out that her symptoms were due to her anxiety.

Research question 3: Effect of asthma on comorbidities—The majority of respondents (18 out of 25) described specific ways in which asthma affected their other health conditions or their ability to manage them effectively. These are also summarized in Table 2.

Other conditions take a backseat to asthma: Just as asthma sometimes took a backseat to other conditions, these other conditions sometimes took a backseat to asthma. For example, one woman summarized how she felt about diabetes during an asthma flare-up:

Forget diabetes—let me take care of this asthma. (*anxiety, arthritis, asthma, depression, diabetes, and one other*)

Another woman talked about a time when she was so concerned about having her asthma medications with her as she left the house that she forgot to also take her diabetes pills.

Asthma interferes with recommended physical activity: Very commonly, asthma was described as a barrier to engaging in recommended physical activity for diabetes, heart disease, or musculoskeletal conditions. Women discussed avoiding physical activity because they believed it would trigger an asthma attack or because it had triggered breathing problems in the past:

When I go to the doctor and tell them about my ankle, and they tell me, they gave me this paper with different exercises I can do, stretches and stuff, and but I don't do it because I feel like that trigger my asthma if I do too much exercising. Like, getting on the floor and some of the stuff they was having me to do on that paper. I don't do it. I feel like that will trigger my asthma. (*age 40; arthritis, asthma, chronic bronchitis*)

I said, you know, “I want to go out here and walk, but I sure, I can't hardly breathe.” “Where do you think you're going? You know you can't breathe.” That's

my husband. I say, “Yeah, I know.” (*age 63; asthma, depression, diabetes, heart disease, hypertension, and three others*)

A few respondents talked about adapting their exercise routine to avoid asthma flare-ups; e.g., by doing exercise in very short bouts. Only one respondent mentioned pre-medicating (a standard recommendation) as a way to prevent an asthma exacerbation during physical activity:

And the first couple of runs, I came back, and I was coughing. Everybody was coughing. And all of a sudden, I freaked myself out: “Maybe this is asthma.” And so, Monday, I pre-treated myself. It was – I didn’t cough, and I felt better, and I go, “Oh, remember that one.” (*age 58; arthritis, asthma, and three others*)

Although most women talked about asthma as presenting a barrier to physical activity, one woman framed the relationship another way, explaining how taking proper care of her asthma enabled her to put more attention into a healthy lifestyle, including exercise:

If I take care of my lungs and stuff, it, it gives me the opportunity where I can make sure I’m eating properly because I’m able to fix stuff so I can eat. So, and that’ll help the diabetes and stuff, instead of trying to get fast food stuff all the time...I can do things, for myself, around the house that will help me. Exercise and all of that. (*age 51; arthritis, asthma, depression, diabetes, heart disease, hypertension, and two others*)

Asthma symptoms trigger symptoms of other conditions: Asthma symptoms were sometimes seen as part of a chain of triggering or exacerbating other health problems. According to one woman, when her asthma was out of control it “set off” a lot of other things, including gastroesophageal reflux disease (GERD). Similar comments included:

For me, to get a virus, then it’s gonna activate my asthma, which is gonna turn into bronchitis, which is gonna knock my sugar out of control. (*age 56; anxiety, arthritis, asthma, depression, diabetes, GERD, hypertension, and one other*)

That’s what I was saying, because one thing can trigger the other. So, even if it’s an asthma flare, it don’t stop there, it seems. It’s kind of, if I have one thing, it’ll kind of flare up the rest, the other stuff. (*age 34; anxiety, arthritis, asthma, depression, hypertension and six others*)

Asthma medication influences other conditions: Finally, asthma medications were viewed by some respondents as having undesirable effects on other health conditions. One woman described how her steroidal medication was an obstacle to losing weight, which had been recommended by her physician for her prediabetes:

I’m trying to control [borderline diabetes] with diet. So, [my physician] said if I keep up. I’m losing three, four pounds here. Three, four pounds there. It’s hard, but because I’m on the prednisone all the time, and that prednisone has you like body-building, you’re hungry all the time. And it’s so hard. (*age 61; arthritis, asthma, hypertension, and five others*)

A couple of respondents with diabetes were concerned about the effect of asthma medications on blood sugar. As one woman explained:

I'm supposed to [check my blood sugar]. I used to be very religious with it, before lunch and after dinner. But my A1Cs were great and I found that the Advair spiked it a little bit, you know, and I would always get crazy nervous. (*age 54; asthma, diabetes*)

Research question 4: Self-management behaviors that benefit multiple conditions—Respondents were asked to talk about anything they did to take care of themselves that they thought helped more than one of their health conditions. Responses were categorized into four subthemes: diet or weight control, physical activity, stress reduction, and engaging in prayer or spiritual pursuits. Of these, diet and weight control were the areas mentioned most often as having positive effects across health conditions. As one woman said:

Once I lose this weight, I'm gonna feel better all the way around. And I'm going to do that – that's my goal is to get this weight off. I'm gonna lose between 50 to 80 pounds, and that's what my goal is. Once I do that, my arthritis gonna go away. It's not gonna be so bad. My asthma's not gonna be so bad because I won't have that much weight to carry and my, and then my blood pressure is gonna be straightened out and then the sugar's gonna go away. So, I got it all figured out. (*age 61; anxiety, arthritis, asthma, depression, diabetes, GERD, hypertension, and three others*)

Physical activity was also cited by a number of women as being beneficial for both their physical and psychological health.

[Walking outside] helps...build the strength in your lungs with the exercise, it helps with that. It helps with the arthritis and the fibromyalgia because you're moving the joints. It also helps with the depression because you see the sun. (*age 46; anxiety, arthritis, asthma, depression, GERD, hypertension*)

Notably, physical activity was not always seen as a strategy for managing asthma in particular:

I don't think of exercise helping asthma. I think of it helping my heart. I think of it helping my arthritis. (*age 58; arthritis, asthma, heart disease, and two others*)

Some women noted that reducing stress or taking part in pleasurable activities provided benefits across conditions or for their overall health:

Reducing my stress helps with my headaches. They don't be as intense as it is when I'm stressed. I have more shortness of breath when I was stressed. I do have that. [*So, reducing stress helps with the headaches and the asthma?*] Yeah. (*age 55; arthritis, asthma, depression, diabetes, and three others*)

[*Interviewer: Anything else you can think of that helps you to kind of manage all of your-*] Shopping and buying shoes and pocketbooks and stuff like that. It takes my

mind off the pain. (age 62; anxiety, arthritis, asthma, GERD, heart disease, hypertension, and three others)

Finally, several women mentioned spirituality and prayer as helping them across health problems. For example, one woman explained how spiritual pursuits helped both her asthma and chronic pain:

Girl, I do a lot of praying, go to church a lot. I try to stay calm as much as I can because when I – if I get over-exerted or upset, I have an asthma attack. And also, it makes me hurt more. So, I try to stay calm as much as possible. So, I try to – I go to church and read my bible a lot. (age 61; arthritis, asthma, GERD, and five others)

For this woman and some others, the four behaviors mentioned above were helpful across conditions because they: 1) directly benefited their physical health, and 2) positively influenced their mood, which improved their physical health.

Discussion

This study used a qualitative interviewing approach to investigate asthma self-management in the context of coexisting health problems. All respondents were African American women, a group characterized by high asthma prevalence, poor asthma outcomes, and a high prevalence of comorbidities. Our sample was diverse in terms of income, education, and living situation, and all respondents were covered by some type of public or private insurance plan. Results indicated that the women in this sample perceived a number of specific challenges arising from the co-management of asthma and other health conditions. Responses also made clear that asthma management was not always their highest priority. Finally, we identified the self-management behaviors that women perceived as providing benefit across their chronic conditions. Five findings with particular relevance for the efforts of clinicians and other health professionals to support asthma self-management in this multimorbid patient population are highlighted below.

1. Among African American women with asthma and comorbid health conditions, asthma is not always seen as the most important health condition and sometimes takes a ‘backseat’ to other health concerns

Schoenberg et al. (5) suggest that prioritizing or giving special attention to certain health conditions helps multimorbid patients to “consolidate their health management activities.” About half of the patients in our study viewed other health conditions as more pressing or concerning than asthma. Respondents tended to give most weight to conditions that were seen as more severe (e.g. with perceived potential to be fatal), and less predictable or controllable. In some cases this was asthma; in other cases it was other chronic conditions, like heart disease or diabetes. Other qualitative studies have found similar perceived disease characteristics to influence patient prioritization (5, 33). Notably, respondents in the current study described how a flare-up or acute crisis of any one of their illnesses might cause the others to take a backseat. The dynamic nature of illness prioritization was also described by Morris et al. (34).

While it was clear that asthma was not always ‘top on the list’ for this group of patients, the consequences of failure to prioritize asthma were not as apparent. Our data did not reveal whether the women who spoke of other conditions as being more important than asthma were any less likely to adhere to optimal asthma-management practices in terms of medication and monitoring. We did, however, find that some women reported ‘forgetting’ about asthma during asymptomatic periods. It is possible that women who place higher priority on other illnesses are also less likely to discuss asthma-related issues with their health care providers. In one study of self-management and communication with physicians among adults with persistent asthma, many of the respondents with comorbidities reported that these other conditions ‘displaced’ asthma as a topic of discussion at clinic visits (35)—although it was not clear if this was patient- or physician-driven. At a minimum, health care providers should be aware that their asthma patients with comorbidities may place greater emphasis on the management of other conditions at a given time, and that this may or may not affect their asthma-management behaviors.

2. Mood and memory problems stemming from comorbid conditions or their treatments negatively impact asthma management

The majority of our sample (17 out of 25 participants) reported the presence of depression or anxiety. Population-based research indicates that major depression is more prevalent in women compared to men (36), and that the risk of depression increases with multiple chronic illnesses (37). The negative association between mood problems, such as depression and anxiety, and asthma outcomes is also well-established (38, 39) and reduced adherence to asthma controller medication among depressed patients has been observed (40). In our sample, some respondents traced their mood problems to the burden of their multiple illnesses. They also described how these mood problems led to diminished motivation for self-management across conditions, including asthma. As has been noted elsewhere, it is important to screen asthma patients for depression (38). Such screening may be especially important when an asthma patient has coexisting health conditions. Notably, almost half the patients in our total sample (12 out of 13 who reported depression) were already being treated with antidepressant medication, which they generally described as reducing but not eliminating their struggles with depression.

No prior studies were identified that examined the link between memory problems or other mild cognitive impairment (MCI) and asthma-related outcomes. Research on diabetes patients shows that MCI may interfere with carrying out complex disease-management routines. (41) We found that our respondents with memory problems—which they sometimes attributed to medication side effects—had difficulty keeping track of asthma medication use and also reported that they missed appointments. Clinicians should be alert to potential memory issues among their multimorbid asthma patients, and, where needed, simplify asthma action plans and encourage tracking of medication use to facilitate adherence.

3. Chronic pain adversely affects mood and motivation for self-management of asthma and other diseases

The subset of women in our sample who reported chronic or recurrent pain (for example, from musculoskeletal conditions or migraines) tended to also have functional limitations and mood problems – a noxious combination that saps energy, motivation, and confidence for management of asthma and other conditions alike. Chronic pain is both an antecedent to and a consequence of depression, and one population-based study found that the particular combination of non-painful and painful medical conditions increased the likelihood of having a major depressive disorder (42). Anxiety disorders are also linked to chronic pain (43). Health care providers should be alert to the presence of chronic pain in asthma patients, and its possible adverse effects on asthma management. Pain from chronic health conditions may not always be adequately addressed in clinical encounters; for example, Schoenberg and colleagues observe that although arthritis often has a substantial negative impact on an individual's quality of life, it is not always prioritized in clinical practice (5). Notably, promising non-pharmacological approaches to pain management have been developed for primary care settings (44).

4. Asthma is perceived as a barrier to engaging in the physical activity that is recommended for the optimal management of many chronic health conditions

Although many women in our sample were aware of the benefits of physical activity for conditions such as diabetes, heart disease, musculoskeletal problems, and mood problems, asthma symptoms (or fear of asthma symptoms) often limited or prevented such activity. Mancuso and colleagues similarly reported that asthma patients, especially those with more severe disease, perceived their asthma as a barrier to engaging in physical activity, in spite of wanting to increase their exercise level (45). Many respondents in the current study similarly mentioned the benefits of exercise for their chronic health conditions. NAEPP guidelines state that exercise-induced bronchospasm should not limit participation or success in vigorous physical activities, with recommendations including medication pre-treatment before exercise—a practice mentioned by only one of our interviewees (32). How to safely engage in physical activity should be addressed in clinical encounters and in behavioral interventions supporting asthma self-management. This information is especially important for asthma patients with comorbidities such as diabetes for which physical activity is a key management behavior. Notably, our respondents also mentioned facilitators to exercise, such as focusing on its benefits, receiving encouragement from their doctor, adhering to daily asthma medications, and making bronchodilators easily accessible during exercise.

5. Weight loss was a goal for many respondents because they believed that it would benefit more than one of their health conditions

Focusing on behavioral areas with significant 'bang for the buck' may serve to both motivate and streamline the self-management routines of multimorbid patients. One such area may be weight control. Many women in this study felt that their weight exacerbated their health problems, and that by losing weight, they would alleviate the symptoms of multiple conditions and feel better in a global sense. Adults with asthma are more likely to

be obese than those without (46) and there may be a dose-response relationship between obesity and severity of asthma symptoms (47). While evidence is mixed about whether weight loss improves asthma control (46, 48), encouraging healthy lifestyle behaviors that promote weight control may be well-received by multimorbid asthma patients who see weight loss as a means to improving their health more generally, and appropriate counseling or referrals are indicated.

The study presented here has several limitations. First, the scope of this paper was limited to themes directly related to multimorbidity and its effects on disease self-management, and it addressed only indirectly the broader social, economic and cultural context within which our respondents manage their health conditions. For example, Becker, Gates & Newsom (49) write of the importance of culturally-based factors that are important to understanding self-care in African Americans, including 1) spirituality, 2) social support and advice, and 3) nonbiomedical healing traditions. We did not ask explicitly about spirituality and alternative healing traditions, leaving these topics to be brought up by respondents. The effects of past and current racial discrimination also shape the context in which African American women manage their health conditions (49). Future reports based on interview data will address the experiences of this group with the health care system as well as the perceived role of social relationships in self-care.

Next, although the current study identified the existence of a variety of multimorbidity-related challenges in this group of women, our methodology does not permit precise estimates of prevalence of these challenges, even within the sample, as interviews were conducted using a semi-structured guide which permitted flexibility in wording and flow of interviews. Counts provided for a particular challenge, therefore, represent the lower bounds of its prevalence in this sample. In future work, close-ended measures of aspects of the multimorbidity experience can be developed based on the themes that emerged in the current study. These measures can be then used in a larger, more diverse and more representative sample of asthma patients, which will also permit comparisons across subgroups of asthma patients, as defined by gender, race/ethnicity, age or other characteristics.

Conclusion

A number of specific challenges are faced by African American women when co-managing asthma and other major health conditions. Most notable are the impact of chronic pain and depression on asthma symptoms and management, and the barrier asthma presents to engaging in recommended physical activity to manage conditions like diabetes, heart disease and musculoskeletal pain. We can speculate that such challenges may be lessened if explicitly addressed by clinicians and/or other health professionals such as care managers, and if providers work collaboratively with patients and one another to define appropriate disease-management goals. Tailoring behavioral/educational interventions for asthma to meet the specific needs of individuals with coexisting health problems may also be indicated.

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Table 1

Women with asthma and comorbidities: Sample characteristics (n=25)

Characteristic	Mean (SD) or % (n)
Age (range 20–63 years)	52 years (10)
Annual household income	
\$10,000	48% (12)
\$10,000–40,000	16% (4)
\$40,000–60,000	16% (4)
\$80,000 and above	16% (4)
Education level	
Less than high school	8% (2)
High school	16% (4)
Some college/vocational	48% (12)
College degree	12% (3)
Graduate degree	16% (4)
Work outside the home (part- or full-time)	40% (10)
Married or partnered	36% (9)
Body mass index (range 22 to 49)	36.0 (5.8)
Asthma control (NAEPP ^a guidelines)	
Well-controlled	52% (13)
Not well-controlled	20% (5)
Poorly controlled	28% (7)
Number of comorbid conditions (range 1 to 12) ^b	5.7 (2.9)
Current smokers	12% (3)
Engages in regular exercise (at least once/week)	72% (18)

^a National Asthma Education and Prevention Program.^b Most prevalent conditions were arthritis (84%), heart disease (64%), diabetes (60%), gastroesophageal reflux disease (GERD) (56%), depression (52%), anxiety (52%).

Table 2

Mutual effects of asthma/asthma management and comorbidities/comorbidity management

Effects of comorbidities on asthma/asthma management (15/25 women named at least one effect)	
a	Asthma management takes a backseat to other conditions. (7/15) ^a
b	Cognitive problems (mood or memory) are a barrier to asthma management. (6/15)
c	Pain and mobility limitations have direct and indirect effects on asthma and asthma management. (7/15)
d	The burden of multiple medications reduces medication adherence. (3/15)
e	Women have difficulty in distinguishing asthma symptoms. (6/15)
Effects of asthma/asthma management on comorbidities (18/25 women named at least one effect)	
f	Other conditions take a backseat during asthma exacerbations. (6/18)
g	Asthma interferes with recommended physical activity for management of comorbidities. (8/18)
h	Asthma symptoms trigger symptoms of other conditions. (4/18)
i	Asthma medication influences other conditions. (5/18)

^aRepresents number of respondents mentioning one or more examples of this challenge out of total respondents who mentioned any challenges in this area.