A community-based approach to translational research addressing breast cancer disparities

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Abstract

Disparities in breast cancer survival rates suggest that biological processes contribute. Translational research addressing health disparities would benefit from using a community-based participatory approach (CBPR) to examine biological processes commonly seen as the proximal causes of illness as well as behavioral and social-ecological “causes of the causes” within an integrated conceptual framework. This paper describes a CBPR study that explored perceptions regarding breast cancer relevant behaviors, and the application of the study’s results to develop translational research. Data from eight focus groups of African American ($n=29$) and Caucasian women ($n=27$) were analyzed, using the framework of the social-ecological model. Nutrition and physical activity were valued over screening and research participation. Treatment of illness was emphasized over prevention. Women’s perspectives are presented within a framework that facilitated the collaborative development of translational research to examine associations among biological, behavioral, and societal processes contributing to disparities.

Keywords

Translational research, Community-based participatory research, Health disparities, Breast cancer

INTRODUCTION

Breast cancer is the second leading cause of cancer death among US women [1], disproportionately affecting African American and low income women [2–8]. Low screening rates among rural, low income, and minority populations may contribute to observed disparities [9–11]. Persistent disparities in cancer survival rates when controlling for disease stage at diagnosis [12] and type of treatment [13] suggest that aggressive biological processes also may contribute to racial and socioeconomic disparities in cancer burden [5]. An emerging literature identifies a cluster of metabolic abnormalities (hypertension, obesity, abdominal adiposity, low high-density lipoprotein cholesterol, hypertriglyceridemia, and hyperglycemia) that have been associated with various measures of breast cancer

Implications

Practitioners: Collaborating with communities can inform the development of community-based activities addressing breast cancer disparities across various levels of influence (e.g. metabolic processes, individual behaviors, community values).

Policy: Resources directed toward understanding community perspectives to address breast cancer disparities are both timely and important.

Researchers: Research using a community-based participatory approach is recommended to more fully develop community-based procedures for developing translational research with potential to examine associations among individual, interpersonal, institutional and community influences that contribute to breast cancer disparities.

morbidity/mortality (incidence, metastatic disease, tumor recurrence, and survival) [14–20]. Diets rich in carbohydrates associated with high rates of breast cancer incidence [21] also modify measures of metabolic dysregulation associated with breast cancer morbidity/mortality in post menopausal women [22, 23]. Associations among sociocultural variables, screening uptake, dietary habits, measures of metabolic dysregulation, and cancer morbidity/mortality establish a complex web of interactions among biological, behavioral, and social processes relevant to breast cancer disparities [16, 24–28].

There is growing recognition that efforts to address complex public health challenges such as breast cancer disparities must examine biological and behavioral processes commonly seen as the proximal causes of chronic illness as well as social-ecological “causes of the causes” within an integrated conceptual framework [29, 30]. The social-ecological model [31] suggests that the sociocultural context (e.g., individual beliefs, social interactions, health-related resources, and community values/

norms) can influence health behaviors associated with cancer and other chronic disease. Fig. 1 illustrates sociocultural processes operating within concentric spheres of influence along with research methods that may be used to examine those processes. The *community level* refers to the cultural norms that influence behavior relevant to chronic illness; the *institutional level* refers to health system policies and procedures that influence provision of services to disadvantaged groups and the facilitation or hindrance of positive health behaviors; the *interpersonal level* refers to the interaction between individuals that influences health behaviors; the *individual level* refers to attitudes and beliefs about health behaviors; and the *organ level* refers to the cellular and molecular changes in organ systems that contribute to chronic illness. Placing biological, behavioral, and social processes associated with breast cancer disparities within this integrated conceptual framework is consistent with the growing expectation that translational research addressing population health must integrate data and methodologies across multiple levels of analysis [32, 33].

Converging data from diverse areas of investigation reveal a need for translational research integrating efforts to examine associations among health behaviors, metabolic dysregulation, and breast cancer morbidity/mortality. Efforts to understand these complex interactions are compromised by the under-representation of minorities in relevant areas of research [34–38]. Limited minority participation

in studies examining biomedical measures of cancer risk and morbidity [39, 40] can be expected to undermine translational research examining interactions among biological, behavioral, and socio-cultural factors contributing to breast cancer disparities.

Although community-based participatory research (CBPR) is becoming well-known as a promising and innovative approach to address disparities in health and engage underserved groups in research [41, 42], efforts to engage community partners in translational research addressing biological, behavioral, and socio-cultural process contributing to breast cancer disparities are not well represented in the literature. CBPR is an approach whereby academic and community partners collaborate in all aspects of the research process (from issue identification to data dissemination) in the context of addressing social determinants of health [41]. CBPR facilitates equitable partnerships to produce sustainable research relevant to communities, education to build capacity to conduct community-relevant research, and action for social change.

This paper describes a qualitative study using a CBPR approach, and the use of the study's results to develop translational research that is relevant to scientific questions examining the etiology of breast cancer disparities, and responsive to community interest in programs designed to reduce health disparities. The social-ecological model was used as an integrated conceptual framework for collecting and analyzing qualitative data, which are presented

Fig. 1 | Social-ecological model

to identify community perspectives that are likely to influence behaviors that are known to be relevant to breast cancer disparities. In addition to presenting community perspectives about behaviors relevant to breast cancer disparities to inform community-based translational research, the paper serves as a useful case study in the application of CBPR.

METHODS

The study methods and materials were developed by the Faith Task Force, a collaborative effort initiated by community and university partners in 2005 to address health disparities in the Lower Mississippi River Delta region of Arkansas. The Delta is a rural [43] area bordering the Mississippi River with a predominantly Caucasian and African American population [44]. Despite a rich cultural heritage, the Delta is wrought with high levels of poverty [45] and rates of chronic disease significantly higher than the rest of the nation [46, 47]. The community partners in the Faith Task Force represent churches, government agencies, and community-based organizations in the Arkansas Delta region. The university partners in the Faith Task Force comprise an interdisciplinary team of investigators representing multiple colleges in the University of Arkansas for Medical Sciences. The Faith Task Force has implemented several chronic disease prevention studies in the Delta since its inception in 2005. This paper describes the Perceptions of Women's Wisdom on Wellness Project, (Pow-wow) which was designed to examine community perspectives regarding a number of behaviors relevant to breast cancer disparities (dietary habits, physical activity, use of medical tests to screen for metabolic dysfunction and breast cancer, participation in translational research). The Institutional Review Board of the University of Arkansas for Medical Sciences approved all materials and methods.

Focus group guide development

A focus group guide was developed to explore a range of behaviors relevant to community interests initially identified by survey respondents in the convenience sample recruited from community churches. University partners developed the initial draft to address community perceptions about behaviors known to be associated with cancer disparities. The focus group guide began with an introduction describing the potential association between metabolic dysregulation with cancer and other chronic illness. Questions were included to probe for barriers and facilitators operating at multiple levels within the social-ecological model to influence health behaviors addressed in the focus group guide (dietary habits, physical activity, use of medical tests to screen for cancer, and monitor metabolic dysregulation associated with cancer risk, participation in research collecting biospecimens).

The initial draft of the focus group guide was pilot tested with community partners in the Faith Task Force. Results from the pilot test were reviewed by all partners and the focus group guide was then revised to be more culturally appropriate with respect to language and attitudes regarding health and health behavior. Example questions included, "how does your family help you make healthy choices about food?"; "what are some of the reasons you want to get these (medical) tests?"; and "how does living in a small town influence your participation in research studies?". Additional information about the focus group guide is available by request.

Focus group procedures

Faith Task Force community partners developed and implemented recruitment strategies based on their experience from the WORD project, which was an NIH-funded pilot to test the feasibility of a chronic disease prevention intervention using the lay health advisor model. The intervention adapted materials from the Diabetes Prevention Project to be culturally appropriate for rural, African American, church-going adults. Focus group participants were recruited by contacting churches or community organizations by phone, asking them to promote the study, and through visiting the church or organization to register eligible participants. Eligibility requirements included being an African American or Caucasian female, and aged 40 or older. Community partners contacted interested women by phone to schedule a focus group meeting. All focus groups were conducted in local community settings familiar to the participants. Groups were separated by race to examine cultural issues specific to each group in the context of addressing disparities [48] and to capitalize on the tendency of participants to share more information in the presence of others with similar personal characteristics [49]. Each group was led by a female African American. A Caucasian female with experience in community-based cancer prevention served as the secondary facilitator and note-taker. Informed consent was obtained from all participants before beginning the focus group. A brief demographic questionnaire was administered, and then the facilitators guided participants in an approximately 1.5 h semi-structured discussion based on the focus group guide. At the completion of the focus group, each participant received a \$10 gift card.

Qualitative data analysis

All focus groups were audio recorded and transcribed verbatim into text for analysis.

Data analysis was conducted by the first and second author in accordance with standard qualitative methods that included: independently identifying response patterns, reviewing the patterns to develop codes, and coding the data into categories [50, 51]. Each investigator independently used an

open-coding technique in which the transcribed data were read in line-by-line detail to highlight salient responses and insert comments in the transcript margins to identify initial patterns and themes. The investigators then met to discuss similarities and differences between their independent findings to establish agreement regarding the observed patterns and themes, and eliminate redundancies. Any disagreement was discussed and resolved before continuing with analysis. The investigators worked together to refine code names and create a codebook based on the study objectives and themes that emerged from the data. They independently coded the transcripts and, subsequently met to discuss the coded data, taking the constant comparison approach to ensure that the investigators were working with conceptually distinct categories. Finally, coded statements were combined across focus groups and mapped onto the social-ecological model to identify processes operating at multiple levels of influence (individual, interpersonal, institutional, and community) that may contribute to cancer disparities. Community level of influence was defined as the cultural factors present in the broader community. The preliminary findings were reviewed with the last author for confirmation and then with community partners in the Faith Task in a “member checking” process designed to maintain transparency in the research process and to improve the accuracy and credibility of qualitative findings [52]. Community members had the opportunity to verify that participant comments were appropriately interpreted, to confirm they accurately reflected identified themes, and to consider implications for subsequent efforts to address breast cancer disparities. Coded data also were examined to determine whether community perceptions differed by race of the focus group participants.

RESULTS

A total of six churches, one senior housing facility, and two community organizations were contacted for recruitment. Due to preexisting activities within the churches and scheduling conflicts, two churches were not available for recruitment. Thus, women were recruited from three churches, one senior housing facility, and two community organizations. A total of 60 women were recruited to participate in eight focus groups; four did not meet eligibility requirements; thus data from 56 community-dwelling women in the Delta were analyzed.

Descriptive characteristics of the women are presented in Table 1. The women were older (mean age=69, SD 11.8) and half were African American (51.8%). Nearly half (41%) were married, and the majority (65.5%) had a high school education or less. Approximately 16.1% were employed. Nearly half (44.6%) reported having good health, followed by 35.7% reporting fair general health. A little over half (53.7%) reported receiving a mammogram

within the past year, and a third (32.7%) reported seeing the doctor one to two times in the past year. On average, the women were obese (BMI=31.1; SD=8.4). The sample was predominately Baptist (58.8%) and highly religious.

Community perceptions about eating habits, physical activity, medical tests to screen for metabolic dysfunction and cancer, and research collecting biospecimens were examined within the social-ecological model to identify opportunities to be addressed in the collaborative conduction of research addressing breast cancer disparities. Quotes capturing the main themes and codes are presented in Table 2.

Examining whether community perceptions differed by race yielded few differences between African American and Caucasian women. Any differences in responses between African American and Caucasian women are indicated in the description below.

Individual level

Women were aware that diet and physical activity influenced health and risk for chronic illness. They were familiar with recommendations for eating healthy and physical activity, and described a healthy lifestyle as the product of personal choice, effort, and faith. However, diet and physical activity strategies were seen as a way to manage symptoms of existing medical conditions (e.g., diabetes, arthritis, and cholesterol) rather than as preventive strategies. Participants voiced a strong desire to adopt and maintain health promoting behaviors, but expressed frustration about “getting back in the old habits.”

When compared with diet and physical activity, women did not consistently express the same interest or concern about the importance of screening tests to prevent disease. Although women utilized screening tests (e.g., mammogram) in order “to live longer”, women with chronic illnesses were more likely to utilize screening tests than those who perceived themselves to be healthy. Other women doubted that medical tests were helpful in preventing disease, citing examples of people they knew “getting [screening tests] every year and then... something [like cancer] happens [to them]”. Women who had periodic screening tests reported that health professionals did not provide adequate information about the cause of certain illnesses, or how to prevent and/or treat them. Consistent with these concerns, the women also indicated that they did not understand “what ‘normal’ is” when given test results.

Women were aware of research opportunities in their community and most reported that they had participated in one or more health-related research projects. Yet, it was revealed that women did not understand the purpose of the research projects or the process of conducting research. Despite this lack of understanding however, the women’s comments about research were generally positive as they

Table 1 | Characteristics of sample (*n*=56)

Variable	Mean (SD)	% of sample
Demographics		
Age (years)	69.0 (11.8)	
Race/ethnicity		
African American		51.8
Caucasian		46.4
Multiracial		1.8
Marital status		
Married or living with partner		41.0
Divorced or separated		53.6
Single or never married		5.4
Education		
Less than high school		30.9
High school or GED		34.6
Some college		16.4
College graduate or higher		18.2
Employed (yes)		16.1
Health variables		
Self-reported general health		
Poor		7.1
Fair		35.7
Good		44.6
Very good		10.7
Excellent		1.8
When received last mammogram		
Within past year		53.7
More than one year, less than 2 years ago		14.8
More than 2 years ago		25.9
Never		5.6
Number of times saw doctor in past year		
0 times		3.9
1–2 times		32.7
3–5 times		38.5
More than 5 times		25.0
BMI	31.1 (8.4)	
Religion variables		
Religious denomination		
Baptist		58.8
Methodist		11.8
Pentecostal		5.9
Church of Christ		17.7
Other		5.9
Religious importance		
Not at all		0
Not very		0
Somewhat		1.9
Very		98.2
Carry religious beliefs over into all other dealings in life		
Not at all		5.9
Not very		0
Somewhat		37.3
Very		56.9
Hours/week for religion		
3 hours or less		35.6
3–5 hours		35.6
More than 5 hours		28.9

identified a number of personally relevant reasons for participating in research projects such as “finding drugs” for diseases, receiving financial incentives, and free evaluation and treatment. Some women expressed a reluctance to participate in research that involved biospecimen collection and projects with no obvious short term interventions and outcomes. Although women recognized the personal advantages of research participation, they generally did not talk about research as a way to better understand health processes, improve services, or reduce health disparities. Research was seen as a way to treat an existing problem rather than a way to prevent illness.

Interpersonal level

Diet and physical activity were described as common topics of conversation among women in the community. Women clearly recognized that interpersonal relationships influenced their lifestyle choices. They often prepared traditional foods preferred by family members, making it difficult to select more healthful alternatives. In contrast, having a friend as an exercise partner promoted physical activity, particularly walking. Pastors and physicians also were identified as trusted individuals with strong potential to influence lifestyle choices. However, women indicated that pastors and physicians were less likely than friends and family to talk with them about health behaviors.

Women were less likely to identify interpersonal relationships that might influence screening behavior relative to eating healthy and being physically active. Some women indicated that family members supported their screening behavior. They also indicated that the importance of medical screening was verbally reinforced by health care providers. In general however, women reported that decisions about screening tests were a personal choice, and they were less likely to talk with friends about health problems and physician recommendations. They also indicated that conversations about health and health care were more likely to focus on negative outcomes than on positive benefits.

Responses regarding interpersonal influences on participation in research involving biological and behavioral processes were mixed. Research rarely was a topic of social conversation compared with healthy eating, physical activity and medical screenings. Similar to screening tests, women felt it was a personal decision to participate in research. However, at the same time, a recommendation from someone they trusted in the community was seen as a valid and important reason to participate in research.

Institutional

Women reported that the food and agricultural industry, local health programs, and faith-based institutions influenced their eating habits and physical activity. They expressed concerns about “the poor environment” they lived in and said it was difficult to access healthy and affordable foods in

Table 2 | Quotations organized by the social-ecological model to illustrate major findings

Socioecological model level	Quotes
Individual	<p>"Now me personally, I start out eating healthy, as I say that, and then seem like after a period of time you start getting back in the old habits. You want that stuff that you know shouldn't have and you just don't eat it-but I have been really trying to cut back and eat healthier now and stuff." (group 2)</p> <p>"... I have a lot of medical problems and my doctor had told me... you need to change your eating habits... I am trying... because... I want to be here as long as I can." (group 2)</p> <p>"... a lot of times you get diagnosed with something early and there's a chance that it can be... treated and you can live longer, because people are living longer now and I think it's because we all have been educated on things to do and things not to do." (group 4)</p> <p>"I had been getting a mammogram and after I learned that people had been getting them every year and then when something [like cancer] happens [to them]...my mom had to have her breasts removed and I stopped going." (group 4)</p> <p>"If you go to the doctor they check your blood pressure then they never really say what it is...I was probably 39 before I finally said, 'Well what exactly is normal?'" (group 7)</p> <p>"We are not really familiar with [research]...the people down here they really don't understand and know what research is." (group 8)</p> <p>"Well some would [participate in research] for money I know... there would be some that would jump right in for the money." (group 3)</p> <p>"... if we don't do research we'll never get the drugs that we need to combat some of the things that are cropping up now." (group 5)</p>
Interpersonal	<p>"My husband would rather have biscuits and gravy and bacon for lunch, breakfast, dinner than anything else in the world and I just soon have a bowl of cold cereal... I pretty much cook what Don likes..." (group 7)</p> <p>"It's easier too when you have somebody to get out and walk with you." (group 6)</p> <p>"I have grand[children] that are nurses, so they all... now mamma you gotta do this, mamma you gotta do that, have this checked, have that checked so I think my family is a lot of inspiration to me." (group 7)</p> <p>"Mine [family] don't talk against [medical tests]; not against it or for it." (group 4)</p> <p>"I think that mine [family] would think that whatever I chose to do would be perfectly okay. Another words, it would be my decision." (group 5)</p> <p>"I do [medical tests] because (sic) the doctor told me that we need to do it because we do it each year." (group 7)</p>
Institutional	<p>"I just think it the area we live in and the poor environment we are in. You can only afford to buy what you can afford to eat." (group 6)</p> <p>"... This stuff that they are giving animals... the chickens that's ready to eat in six weeks... I believe it is just getting and settling in our bones... I believe that's where we are getting the most of our afflictions." (group 4)</p> <p>"I think we are fortunate to have the activities that we have here, exercise programs. I don't think many small towns would have them." (group 5)</p> <p>"I don't mind going to get [screenings] but when I have to go to Little Rock it's just so far to go. I don't like to ride a long ways." (group 3)</p> <p>"That is the reason why some of us don't go and have that done is because if you don't have insurance they really don't wait on you... you have to pay up front now in order to have a time to get anything fixed and that keeps a lot of us from not having tests done that we know need to be done" (group 2)</p> <p>"... and you want [doctors] to talk to you, you know, but most of the time they don't." (group 4)</p> <p>"... they are fixing to do something like this [research] with our summer in daycare, where they are gonna draw blood and stuff and the purpose of this is they are looking for some type disease, or something like that." (group 4)</p>
Community	<p>"... trying to eat healthy and being from the South like this, it's is hard not to crave those fried foods, because as long as I've been trying to eat, sometimes I just have to have something fried. Just have to." (group 7)</p> <p>"You didn't have anything else to eat, you had to eat that or you didn't eat. We didn't have our choice of what we wanted to eat; we had to eat what was there." (group 3)</p> <p>"... in our culture there's other things that we view more important than exercise..." (group 2)</p>

Table 2 | (continued)

Socioecological model level	Quotes
	"I said, 'Lord, I can't do this by myself. You are going to have to give me the strength because I just want to eat up everything I can see.'" (group 2)
	"I use to go and get check-ups, you know, yearly, but if it's not broke, don't fix it. Don't try to find out what's broke." (group 2)
	"I think it's more important for the women in our culture to really take care of themselves, because... some of us are everything in our families. You know, we do it all..." (group 5)
	"... you got to trust in the Lord, you know, in order to have it [have medical tests]... Sometime they doubt Him, which you don't doubt, trust in him, the more you pray the more you trust in him. Anytime something gets wrong with me well they'll say, 'what you going to the doctor for', I say I have a little pain right over here I better go have it checked out and if somebody says don't go, I am going because I want to see what is going on." (group 2)
	"If someone just a stranger come in... say somebody from Los Angeles come down here, I don't think people would go." (group 7)
	"... we can barely get people out to vote... people just aren't interested in a lot of stuff that people need to do studies and stuff for. I think that's just it in general." (group 7)
	"I think they [community members] just don't trust things they don't understand... what's left here are the ones that can't afford to go anywhere else. They don't have a job, they are living on welfare and they don't want to rock the boat." (group 5)
	"Look, you're helping yourself, and not only yourself, you're helping others." (group 3)
	"[God] gave you sense to decide what you want to do. He gave you that much sense to say 'Hey you my child, it's up to you in order to do that'." (group 2)
	"I love the Lord and I know you love Him, if you have the faith I don't believe He's gonna let anything hurt you, you know." (group 2)

their rural communities. African American women saw hormones and chemicals in meats, fruits, and vegetables as the source of "afflictions" and one of the reasons for the high prevalence of chronic diseases in their community.

Local health programs were seen as a valuable source of information about healthy eating and physical activity. Women described local activities and exercise programs, such as the community walking trail, local parks and gardens; participating in walking clubs, and fitness classes. Caucasian participants listed more program resources (e.g., fitness classes, swimming pools, and water aerobics) for physical activity than African American participants.

Churches frequently were described across all groups as an important institution in women's lives. However, churches were not routinely recognized as supportive environments for healthy eating or physical activity. Women indicated that foods served at church functions typically were high in fat and sodium. Pastors, though a trusted source of information, were not seen as positive role models for healthy behaviors.

Lack of transportation was identified as a challenge that frequently limited access to screening tests. Women in Caucasian focus groups mentioned a few local churches and community-based organizations that offered occasional screenings events (e.g., health fairs). Other institutional barriers limiting access to preventive health care included inadequate or no health insurance and high health

care costs. Women had the perception that patients without health insurance did not receive the same level of treatment as those with insurance. Policies established by some health care providers may promote screening. Women reported that face-to-face visits required to obtain medication refills prompted them to receive regular preventive screenings (e.g., cholesterol, blood pressure, glucose, and cancer screenings). However, other women stated that doctors "not wanting to talk to you" limited people in their community from getting screened or receiving other important health care information in a timely fashion.

Consistent with comments regarding limited access to grocery stores, exercise facilities, and health clinics, lack of transportation, and geographical distance were identified as barriers to research participation for women living in rural communities. Limited opportunities to participate in research projects were also mentioned by the women.

Community level

Women across all groups reported that growing up with traditional "Southern" cooking habits (e.g., fried foods) and a rural family culture of "we had to eat what was there" cultivated a preference for certain foods. Though positive changes in their food culture were acknowledged (e.g., emphasis on low fat foods), women spoke of the ongoing difficulty in choosing to cook healthy meals, and thereby eat

healthier. They also contrasted “today’s [unhealthy] foods” with a history of gardens in rural communities that were a source of fresh fruits, vegetables, and physical activity. The women clearly described the shift from growing up and working in an agrarian community as children toward more sedentary work and leisure time as an adult. They described a spiritual culture in which religious beliefs helped them make healthy choices with “strength from God” providing the will power needed to maintain healthy eating habits.

Responses reflected community-level cultural values that characterized medical screenings as a necessity, but not a desirable or routine part of maintaining health. Although women expressed the opinion that one should not go to a doctor until there was something wrong (“unless it’s broke”), they acknowledged that they “are everything in [their] families” and therefore needed to stay healthy to maintain their family’s health. Women did not spontaneously identify spiritual values as a reason for using preventive services to stay healthy. When asked however, they described religious beliefs as a resource to help cope with illness and said that faith gave them the strength to face possible negative results of medical tests. Consistent with this perspective, women indicated that faith helped them make appropriate use of available health care services.

Women reported that they would be less likely to participate in research studies conducted by “strangers”, or research personnel the community was not familiar with. Women also discussed a community culture of non-participation in activities, which included research participation. Some women speculated that the community’s lack of understanding about research kept community members from “rocking the boat” by participating in research studies.

Women suggested that the expectation that members of religious communities should help one another could be a potential reason to participate in research. As with eating, physical activity, and medical screenings, women saw faith and prayer as resources to help make difficult research-related decisions (e.g., taking part in a clinical trial to treat a medical condition) and cope with concerns about research participation.

DISCUSSION

Examining community perspectives about behaviors relevant to breast cancer disparities within the social-ecological model [33] places collaborations with community partners in a conceptual framework that identifies opportunities and challenges to be considered a community-based participatory approach to translational research. Salient community perspectives and options for community-based translational research relevant to those perspectives are summarized in Fig. 2.

Fig. 2 | Community-based translational research mapped onto the social-ecological model

The value of applying the social-ecological model as an integrated conceptual framework for a community-based participatory approach to translational research is most clearly illustrated by changes in research projects as the community-university partnership has evolved over time. Community-level health concerns initially identified in a convenience sample recruited from rural churches focused attention on efforts to influence individual dietary habits and physical activity as a health promotion strategy. These early research activities focus on community values and interpersonal influence to change health behaviors on the individual level. The potential impact of individual behavior change on biological processes contributing to chronic illness was not identified as a priority and was not addressed at this early stage of collaborative efforts to develop translational research addressing health disparities.

The five year collaborative history of The Faith Task Force established a foundation for community-based participatory research to identify community perspectives regarding the association of health-related behaviors that are highly valued by community residents (eating habits, physical activity) with other behaviors relevant to health disparities (use of medical tests to screen for metabolic dysregulation and cancer, participation in prevention research). Community perspectives defined in focus groups identified a range of research options and provided a foundation for working with community partners to develop community-based translational research.

The social-ecological model provides an integrated conceptual framework that has made it possible to address a broad range of processes relevant to a community-identified interest in health risks. Continued collaborations will identify community-relevant research questions and methods to address current gaps in our understanding of associations between dietary habits, metabolic abnormalities, research participation, and cancer risk.

Implications and caveats

The community-based, theory-driven approach described in this paper has played a key role in collaborative efforts to develop translational research addressing breast cancer disparities in the Lower Mississippi Delta region. The process and outcomes demonstrate how community perspectives and scientific theory can inform the development of translational research addressing breast cancer disparities across various levels of influence (e.g., metabolic processes, individual behaviors, and community values). Although this process may provide guidance for others developing community-based translational research, findings and recommendations should be considered within the methodological constraints of the study. Focus group methods were developed specifically to examine behaviors

related to healthy eating and physical activity, use of medical screenings, and health research participation among African American and Caucasian women living in a rural, impoverished region of the Lower Mississippi Delta in which the population is characterized by a high concentration of risk factors associated with breast cancer. Perspectives voiced by the focus group participants are relevant to comparable populations but may not be generalized to other demographic settings. Specific priorities and procedures comprising viable community-based translational research in other settings must emerge from an ongoing collaborative dialogue engaging relevant stakeholders.

Given the promise of community-based participatory approaches to address disparities in health [41], understanding community perspectives to address breast cancer disparities is both timely and important. Additional evidence is needed to validate this strategy as a way to achieve positive health outcomes [41]. Replication of this approach is recommended to more fully develop community-based procedures for developing a comprehensive translational research agenda with potential to examine associations among individual, interpersonal, institutional, and community influences that contribute to breast cancer disparities.

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