Healing on the Dance Floor: An Investigation of the Physical, Cognitive, and Emotional Impacts of Break-dancing on Individual and Community Health

Praneel Bonthala

Center for Community Engagement

CESC 191BX: Capstone Research Seminar

Dr. Zack Ritter

June 14, 2024

Problem Statement

A common critique of the current generation by older folks is that "social connectedness" is dying, especially against a backdrop of a growing digital world where reserving conference rooms has been replaced by Zoom. However, this trend has been happening for some time—even before the COVID-19 pandemic (Kannan et al., 2023). Kannan et al. (2019) describe the progressive downturn of social connectedness based on a 2003 to 2020 American Time Use survey. The results of the survey are significant because social engagement has been linked to numerous positive health outcomes, reducing chronic inflammation, high blood pressure, and even mortality (Holt-Lunstad et al., 2010; Yang et al., 2016). Another noteworthy discovery from the survey is that Black Americans generally experience the least amount of social engagement and connectedness, which is consistent with theory that suggests marginalization has a negative psychological impact on populations that extends to social isolation (Williams et al., 2023). Thus, it becomes increasingly relevant to identify vehicles for maintaining connectedness for subjugated populations in order to prevent disproportionate negative health outcomes.

Art is one means of creating healthy communities through social connectedness. Broadly defined by the WHO (2019) as a product that is not only valued as a utility, but for providing some degree of imagination or emotional response for both the artist and consumer, art is conceptualized as a mutually beneficial exchange. The role of art in mediating connectedness in oppressed communities is particularly evident in the Bronx during the early 1970s, where hip-hop became a mass movement after disc jockeys began making beats with records that others could rhyme or dance to (Keyes, 2002). Break-dancing was born out of this movement as a means to bring the Black community together in a violent and oppressive environment (Keyes, 2002). Growing up in communities rooted in violence has been linked to poor psychological and

behavioral outcomes, but break-dancing offers a culturally competent means of bridging the social isolation that normally results from oppression (Voisin et al., 2016).

However, there is a significant discrepancy in access to performance art, especially for Black youth. Generally, performance art is severely underfunded and underutilized in most public education spaces, with only 21% of California high schools providing dance education (SRI Education, 2020). It was also found that 68% of California schools in low-income areas rely on parent-funded sources of funding rather than Title I or general funds, increasing the burden on families to fund art programs—making it more difficult for lower-income youth to access arts (SRI Education, 2020). A separate survey by the National Endowment of the Arts in 2008 also found that both Black and Hispanic students have less than half of the access that White students have to arts education.

The severe lack of access to arts programs has potential consequences for the well-being of students and communities, especially when these programs have historically been used to mobilize community health. Art plays a role in coordinating social determinants of health as well as offering a therapeutic outlet for individuals struggling with their health (WHO, 2019). This study seeks to identify the role of art in building up the social and community capital of those that participate in it in order to contribute to healthier lifestyles. If break-dancing shows significant contributions to making healthier communities, then there is a strong argument against the defunding and crowding out of arts programs in public education systems.

Literature Review

The Role of Art in Building Community and Social Connectedness

With the power of universality, art is special in that it can be engaged with by people from any background. Whether visual, auditory, or spatial, art weaves communities together in a

way that research shows can improve health outcomes. This is examined in Feinberg et al.'s (2016) case study of Dance for Health, an organization that uses dance as a means of bridging inter-generational and inter-cultural gaps between nurse practitioners and local students in Philadelphia. By providing a space for the participants to learn line dancing together, the practice also opened the opportunity for bi-directional dialogue. Through dance, the students learned about productive healthy habits from nurse practitioners while nurse practitioners learned about the interests of the community they sought to support. Social contagion theory, illustrated by Christakis et al. (2013), states that health practices and beliefs diffuse among a community with strong social ties as illustrated by arts-based communities like Dance for Health. Patterns for healthy wellbeing have the potential to root themselves deeply through art facilitated social connections. The idea of art as a vehicle for social connectedness is further explored by Gillam (2018). Arts-centered communities are inherently participatory, and Gillam suggests that the extent of participation in this activity is relatively proportional to the best mental and physical health benefits. Participation mediates community-building, so arts-based interventions should create a space that encourages self-expression from all participants.

Social connectedness as a result of arts-based interventions plays an important role in facilitating social determinants of health that lead to positive health outcomes. Holt-Lunstad et al. (2010) conducted a meta-analysis of literature that identified the extent to which having access to productive social relationships mitigates mortality. It was found that participants with stronger social relationships have a 50% higher likelihood of survival, consistent across identities of race and gender. Weak social relationships are often more predictive of substance abuse, physical inactivity and isolation, and poor mental health. In an older study measuring the association of social capital with mortality, Kawachi et al. (1997) found that perceived fairness in

relationships, perceived helpfulness in relationships, group membership, and trust all are associated with both lower income and higher mortality. Social connectedness also has the potential to reduce neighborhood violence, increase access to healthy food, and increase the prevalence of health and exercise institutions (Matsaganis et al., 2015). As a result, public health professionals and practitioners suggest that interventions that seek to increase social connectedness should take a life-span approach, integrating strong relationship-building through all courses of an individual's life (Holt-Lunstad et al., 2022). These types of interventions are readily able to be implemented by using art as a medium, as art can be engaged with by participants regardless of age, and should continue to be explored as larger models for expanding social connectedness are created as a public health resource.

Hip-hop Conceptualized as a Healing Institution

Hip-hop is one such art-form that has historically been used as a program of building social connectedness. In 1999, as the movement was rapidly gaining popularity, Mos Def—famous for his involvement in the rap duo Black Star—said that hip-hop embodies the communal experience of Black life and culture (Keyes, 2002). Expanding on the symbolization of hip hop, cultural theorist George Lipsitz describes hip-hop as bringing a community of collective trauma into being through storytelling and movement (Lipsitz, 1994). As an outlet for creating social connectedness, evolved out of a shared passion for disk jockeying, poetry, dancing, and graffiti art, hip hop very quickly became a vessel for uniting over shared experiences of oppression.

Margaret Newman's theory of health as expanding consciousness, which states that health is not only affected by disease but also by conscious interactions between an individual and their environment, reveals ways in which building community through an art-form like

hip-hop is important for health outcomes (Endo, 2017; Fig. 1). In a 2000 study based on

Margaret Newman's theory, the effects of creative movement as a means to interact with others

and the surrounding environment was measured (Picard, 2000). It was found that participants

reported better self-awareness, satisfaction with self, and the ability to let go, resulting in a

healthier outlook and way of life. As a form of creative movement, hip-hop's potential to

transform unhealthy or negative constructs of self for its participants is noteworthy. Especially in

spaces that are predominantly Black and Brown, the community built through creative

movement such as hip-hop plays an integral role in improving health at a social, physical, and
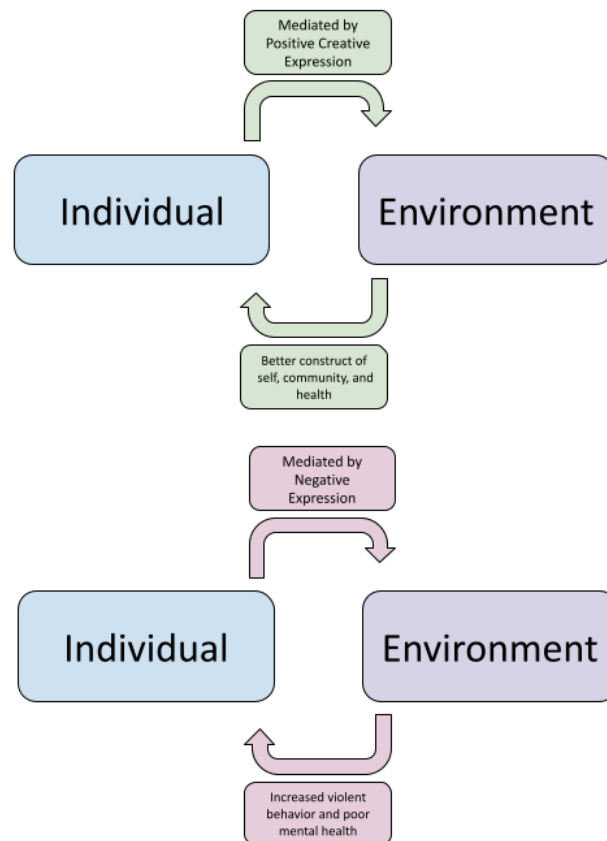
mental level (Keyes, 2002).

Fig. 1 | Margaret Newman's Theory of Expanding Consciousness applied to positive and negative manifestations of creative expression. The means by which an individual interacts with the environment can create either beneficial or harmful health effects, in addition to the existing hostility that may exist in the environment.

Given the evidence-based role of hip-hop in improving health and well-being, a closer look at ways in which these programs can be organized is warranted. As Gillam (2018) had suggested, interventional arts programs must be widely participatory and accessible in order to have the most profound health impacts. Clift (2012) proposes that arts-based interventions should focus on the accumulation of cultural capital, the total conception of a person's reality between politics, economics, and aesthetics, over an individual's life-course. Aesthetics and art play a significant role in building a person's cultural capital, and similarly to Margaret Newman's theory, suggest that conscious interactions with art will lead to healthy outcomes. Clift agrees with Gillam (2018) that voluntary participation in the arts and a willingness to engage with the new or unfamiliar ultimately creates better health outcomes—even corroborating Picard's (2000) finding that dance creates better psychological and cognitive outcomes. While future practice and large-scale interventions may take some time to design, there is clearly a need for arts programs that are organized with the intent to build a person's cultural capital, social connectedness, and creative expression.

Organizing Arts-Based Health Interventions through Breakdancing

Breakdancing, a specific component of the hip-hop movement, is one of many ways that these programs can be organized. Data collected on HYPE, a youth-centered hip-hop dance organization in Logan, Ohio, revealed that breakdancing increased the social resilience and connectedness of inner-city participants (Brader, 2011). The WHO (2019) defines two areas of

health that the arts can have profound effects on: preventative health interventions and therapeutic health interventions. The participants of HYPE had clear links to positive preventative health outcomes such as social resilience—a measure of the individual's ability to cope with pressures that include but are not limited to poor access to food, housing, and education (Brader, 2011). Understanding the historical role of hip-hop and breakdancing in building community, and the current role these art-forms play in managing resilience to create positive health outcomes, this study seeks to build on the existing literature to encourage the implementation of large-scale hip-hop based programs. By taking a look at another breakdancing program, Justice By Uniting in Creative Energy (JUiCE), mapping out the ways in which creative expression improves health can provide a working model for future programs.

Theoretical Framework

Hip-Hop Derives Meaning as a Symbol

This study recognizes breakdancing, hip-hop, and the broader arts as symbols consistent with symbolic interactionist theory, which states that meaning is derived from objects or concepts through interacting with them (Aksal et al., 2009). This meaning manifests in symbols that are interpreted differently based on human behavior. Consistent with this theory, the meaning hip-hop's participants derive from it differs based on how they interact with the art-form. As described by Mos Def in 1999, hip-hop for many of its stakeholders symbolizes the communal Black experience, carrying both trauma and excellence (Keyes, 2002). At the same time, hip-hop may also exist as a symbol for angst and rebellion against a sanitized environment for a suburban White teenager. The direct interactions of humans with these symbols ascribe them their meaning (Aksal et al., 2009). As a result, the way in which these concepts create health outcomes for different people may be fluid. This study also seeks to identify the meaning

of breakdancing as a concept and institution in the lives of the participants. As expressed by Margaret Newman's theory, the ways in which individuals give thought to and interact with symbols in their environment affects their health (Endo, 2017).

Methods

Justification for Mixed Methods and the Validity and Reliability of Conversion Design

The proposed methodology for this project is mixed-methods, taking advantage of both qualitative and quantitative data as an evidence-based model to assess the effect of interventional arts programs on health (Schoonenboom et al., 2017). Qualitative data provides a bulk of evidence for contextualizing quantitative data. Both forms of data are vital for establishing a complex validity for the study; validity directs the outcome of the study because the conclusions of the study are directly drawn from the instruments used to conduct the research (Fraenkel et al., 2003). The use of surveys and interviews in mixed methods studies is heavily documented; Schoonenboom et al., (2017) describe this design as a conversion design, where qualitative data is obtained to contextualize and guide analysis of quantitative data obtained by survey. Obtaining data from multiple streams also improves internal validity through corroboration (Zohrabi, 2013).

Reliability in the study is concerned with creating a replicable design. If this study were to be repeated for another arts organization with the purpose of tracking benefits in wellbeing, then the data should be consistent with the methods (Zohrabi, 2013). This is done through explicit standards that are outlined in designing the methods tools and recruitment procedure. A reliable analytic construct ensures replicability of research (Zohrabi, 2013). However, due to the nature of convenience sampling, the population used in the study is not fully generalizable to the population at large in the Los Angeles community (Andrade, 2021). Additional limitations using

9

the conversion design will be outlined below during the discussion of the data-collecting procedures.

Recruitment and Convenience Sampling

Study participants were recruited from those that are a part of the JUiCE program, a free-form space available for people to practice and learn breakdancing. This method of sampling follows the nonrandom convenience sampling recruitment design, where an easily accessible population is sampled by voluntary participation–in this case, at JUiCE (Andrade, 2021). The average demographic at the program events are young adults between the ages of 20 and 35. The population is primarily Asian and consists mainly of local Angelenos. Study participants were recruited on a volunteer basis, organized in conjunction with the program CEO. This project included 6 participants for surveying and 7 participants for interviewing. The rationale behind choosing at least 7 participants for qualitative interviewing is based on previous data collection done on qualitative interviewing, where it was found that data on interview themes became saturated past 12 interviews (Guest, 2006).

Control participants were also recruited from the CESC 191X course. There were 11 students enrolled in Dr. Zack Ritter's section. Only 6 students in the section completed the survey as control data.

Data Collection

The first part of data collection was semi-structured interviewing. This procedure is centered on using a schematic interview guide with open-ended questions that encourage the interviewee to explore their own answers without losing track of the agenda (Jamshed, 2014). This was achieved by organizing the interview structure around a few central questions that have branching, thematic subquestions. These questions gathered data on the following categories:

identity, participation in breakdancing, access to health related institutions, perception of self, and perception of community. Any new themes that came up during the interview were also subjected to analysis. Interviews were recorded then transcribed using Dovetail analytics. The limitation to using a semi-structured interview format is the drain on time. While not as time consuming as an unstructured interview, where there is no interview guide, semi-structured interviewing leaves space for lengthy answers (Jamshed, 2014). While this allows the interviewer to gather more data, it takes more energy and time. Data saturation may also blur the main goal of the study and deviate from concise analysis.

Qualitative data collection also included participant observation, an anthropology data collection strategy that involves cognizant observation as a written screenshot of what is taking place at the site of interest (Kawulich, 2005). At JUiCE, observations were noted at each hour on a notepad, then assessed alongside the interviews. Participant observation was essential for this study because it (1) allowed a greater flexibility of rapport to be built with the participants and (2) offered a glimpse into closer interpersonal interactions that took place at JUiCE. Furthermore, participant observation allows for the collection of data that can then inform additional questioning through interviews and surveys (DeWalt et al., 2002). The data assessed through these observations were integrated into follow-up questions used in interviews.

The second part of data collection was surveying in order to gain quantitative data. The survey included self-reported data with questions based on the CS-Base model, a generic measurement tool that can be used to measure 12 different indicators of health on a numerical scale (Zhang, 2023). As a patient-centered measurement tool, the indicators of health were obtained from a study where a large population of patients with varying diseases picked their most important indicators of health from a HealthFAN diagram—a visualization of social,

mental, meta, and physical health domains (Krabbe et al., 2019). These indicators are based on user preference rather than top down literature reviews conducted on historically used indicators—a model that predominates research on health outcome interventions. The indicators of health used by the CS-Base model are mobility, vision, hearing, cognition, mood, anxiety, pain, fatigue, social functioning, daily activities, self-confidence, and self-reliance (Krabbe et al., 2019). Study participants ranked how they feel about their own health in relation to these indicators on a scale of 1 through 4. The survey was offered to CESC 191X students. Results were both aggregated and categorized to identify trends in health outcomes between those that participate in JUiCE programming and those that do not.

Design Limitations

One limitation that exists with using the CS-Base model survey, however, is that it reduces all health outcomes to 12 numerical indicators. Although the tool is entirely patient preference-based, this is still a limited pool of answers that encompasses the entirety of an individual's wellness. Additionally, there is significant variability in how different people perceive the rankings of 1 through 4. Although this is quantitative data, it is widely subjective. Further areas of exploration include looking at the answers of students that do not participate in JUiCE programming, but may incorporate art in different ways in their lives. The control group was not used for interviewing because the primary purpose of the interview was to identify themes that will both contextualize and guide recommendations based on the quantitative data.

Reflexivity and Positionality in Creating the Project Framework

The context and methodology for this project must be framed in relation to my own identity as a South Asian male born to immigrant parents. My cultural background is detached from the development of breakdancing and hip-hop as both an art form and movement. However,

dance continues to play an integral role in South Asian culture—cultivating a space for expression and the liberation of the body, in the same way that breakdancing has historically done for marginalized communities in the United States. The fusion of contemporary Bollywood art styles and hip-hop continues to be a growing practice. The way that I have seen dance become so integral to the identity of a community of dancers in India parallels the ways that hip-hop created an identity for Black and Brown youth.

Growing up in both Canada and the United States, I have had to navigate the differences in cultural norms between my parents and the rest of the community. While this study focuses strongly on how developing a strong community creates positive health outcomes, my own experience has been isolation from community. Growing up in predominantly White neighborhoods for my entire life, my racial identity has always excluded me from the culture that predominated the community. Through art-forms such as dance, I seek to identify ways to build communities based on shared interest and healing, not exclusion.

Finally, I recognize that the analysis of data from both interviews and surveys are biased in the way I view health. As someone that believes in the holistic model of health, defined by James S. Gordon (1982) as an attitudinal approach to healthcare that includes treating the psychological, familial, societal, ethical, and spiritual dimensions of an individual, I perceive health benefits not solely as improvements of physical condition. Especially qualitative data, which is subject to thematic interpretation, will be skewed towards identifying health benefits that lie outside of physical health improvement through dance. Additionally, consistent with symbolic interactionist theory, I will seek analysis of the relationship individuals have with dance as a symbol, and how this may affect health. Thus, the definition of health in this study is wide in scope.

Results

Break-dancing is Tied to Healthy Perceptions of Identity and Community

The seven interview responses from participants at JUiCE were characterized by two sets of sub-themes: (1) specific descriptions of identity, community, dancing, or health, and (2) motivations for break-dancing. Fig. 2 represents the cumulative statements made during interviews, with themes that have a larger area representing statements that were made more frequently. Participants often cited the following areas as their motivations for break-dancing: self-expression, pride in the community, improving mental health, and reflections of personal identity.

Fig. 2 | Sunburst diagram of interview responses (n = 7) made up of 106 statements categorized between the major themes: health, community, personal identity, and participation in breaking. The innermost circle represents these major themes, the second outer circle represents sub-themes, and the outermost circle represents participant motivations for break-dancing.

Participants cited a large variety of themes and motivations throughout their interviews, but it is clear that themes related to community and personal identity were most frequent. Self-expression and break-dancing to build friendships were most often discussed, alongside using break-dancing as a way to blow off steam after long working hours. Break-dancer, "Luis",

had mentioned that he works almost every-day, needing two jobs to pay his bills. But break-dancing offers an outlet to build community and unwind, preventing possible burnout and depression. Fellow break-dancers "Ahmad", "Brandon", and "Angelo" shared similar sentiments, as they struggled with the transition from college life to work life, citing break-dancing as a vital tool to cope with the "9 to 5".

> After a long day of work you're kind of just tuned in. You're kind of a cog, not like yourself mode, you're in work mode. Then it feels like letting off that steam from there. That's how I see my mental health. (Ahmad, 2024)

Ahmad shared that there is a mundaneness to his work that is almost counterproductive to exercising self-expression. As a result, break-dancing is a way to express creativity in a dynamic way. The idea of self-expression as improving mental health was a common pattern throughout the interviews, as shared by "Matt", a veteran in the scene who has been break-dancing since the 1980s.

> Breaking literally lights up your physical, spiritual being. It's the highest consciousness - you're releasing crazy endorphins. When you're dancing, you can never be depressed. How can you be mad and happy at the same time? (Matt, 2024)

To those that break-dance, it appears to be the purest form of self-expression. Matt implies this tangible connection between self-expression and mental health in the same way as Ahmad. An individual's formation of personal identity then, is clearly influenced by the way they engage with an expressive art-form like break-dancing. Break-dancing as an extension of hip-hop and an influence on the way participants carry themselves was made evident by Matt, as he shared his own experience growing up in the 1980s, when the art-form was burgeoning.

B-boying is the way you feel. It's your fashion. Your graffiti on your letters. So I don't

have to be from New York to feel this way… You guys are not from the Bronx. So you

don't know what's up? I'm like, bro, it don't matter. A b-boy is a b-boy. (Matt, 2024)

How you would find breakers… you'll walk through the neighborhood with the music,

like a big speaker, the boombox, walking down the street and people hearing that… it

kind of develops into a friendship. Okay, let's go to the next neighborhood though. Like,

there's some electric rock breakers over there, let's go see. (Matt, 2024)

The culture of break-dancing has always been one of community and togetherness, as

iterated by Lipsitz (1994), who described hip-hop as a healing institution through social

connectedness. Matt makes these themes vivid as he describes his interaction with the culture

growing up. Matt also stresses the way that break-dancing transcends geographical bounds,

despite being closely tied to geographic identity. For example, Matt was a part of west coast

crews that carried a tradition of pride in being from Los Angeles. As a result, there was a

competitive spirit between crews from the east coast or the south that sought to herald their own

community's style and spirit. Despite this competition, however, there is no doubt that anyone

can participate in break-dancing. As long as you embody the culture of the art-form, described as

fashion and graffiti by Matt, you can be a b-boy. Matt even shared that some of his closest

friends that break-dance are from France, India, and Japan. While break-dancing was born out of

a singular Black oppression, it is an inclusive art-form that at its core seeks self-expression as

liberation.

The impact of break-dancing on personal identity goes further than self-expression.

"Adolfo" shared his own experience growing up in violent areas around Los Angeles, and how

break-dancing was the tool that saved him from involvement with gangs.

I grew up with a lot of gang members, and I was like 11… He [mentor] saved me growing up… saved me from a lot of trouble growing up and just investing my time being creative. (Adolfo, 2024)

Adolfo offers creativity as a way to build healthy communities. This role that creativity plays in community health was shared by others as well. Ahmad noted that the creativity manifested through break-dancing constitutes a large part of how he builds relationships with those around him, even mentioning that he finds it harder to get along with those who are unable to express themselves creatively. By constructing friendships rooted in healthy forms of expression, the communities formed through break-dancing are much more productive than many alternatives that youth in the Los Angeles city are exposed to today.

Participant motivations for break-dancing are also significantly influenced by how they grew up and how they interact with the culture of hip-hop, consistent with symbolic interactionist theory as described by Aksan et al. (2009). "George" shares that those who try to interact with the art-form in college spaces simply don't understand it the same way that those from the city do.

A lot of people initially just want to like, learn some cool shit… they don't have the soul of hip-hop. (George, 2024)

It appears that there is a difference between break-dancing out of need for a healthy community and competition for the sake of learning cool moves. Hip-hop is ultimately about community, yet depending on how you interact with the space as a participant, it becomes easy to lose sight of that and treat it as an individualistic competition instead. For those that grew up in

the culture, like Matt, or found it as an escape from violence, like Adolfo, break-dancing takes on a much more salient meaning as a form of community-building.

Break-dancing Conceived as a Communal Sport through Participant Observation

Traditionally, most sports-based competitions are either between individuals or teams. What makes break-dancing unique is that it is neither—rather it is a communal exhibition. Each participant shares a part of the space to show off their moves, before ceding it to their opponent, who then shows off their own moves. Although the traditional battle format of break-dancing involves two break-dancers seeking to one up the other with their moves, a common format seen at JUICE is the cypher. A circle of break-dancers forms with each person showing off their moves one by one in the middle of the circle (Adelekun, 2018). Although this is a competition, each participant is met with cheers of support and hype from the outer circle. While each person in the cypher is seeking to outperform their opponent, there is still a vocal desire for the opponent to perform well. George shared this sentiment in his interview.

> Part of the reason for the competitiveness is because like, they know everyone. You want your competitor to go hard, like, you want to see them succeed. (George, 2024)

Participant observation revealed much of how break-dancing curates a space rooted in community, and how this community is often a site of mutual aid. Mutual aid has historically played a large role in building resilient communities in the face of oppressive systems, given its observable use during the COVID-19 pandemic (Bender et al., 2023). Relevant to marginalized communities disproportionately affected by times of crisis, mutual aid refers to the collective solidarity and support between affected members of a community. For the folks at JUiCE, much of their strongest relationships are built through break-dancing, and thus they have been able to build a mutual aid network that makes them resilient despite some of them coming from violent

backgrounds. The way that this network is able to succeed is through the strong community that is present at JUiCE.

Any time a break-dancer walks into the room, they walk its perimeter and fistbump everyone there. This surprised me upon my first visit, as I was also welcomed with open arms, despite not knowing anyone in the room. As soon as the music starts playing, the break-dancers start making eye contact and forming their own circles to cypher. Despite not having break-danced myself before, I was pulled into this dance without hesitation by the other break-dancers. As long as you can move to the beat, anyone can break-dance. George shares this singular sense of community.

> But I'd say the sense of community is 100% there. Like people know you, like they want to be fans of you, you know, like they want to see that cool shit that you've been doing and loving. (George, 2024)

This sentiment is essential in building a resilient community, as according to Bender et al. (2023), shared goals and needs make the network stronger. I have witnessed the strength of these community ties built through sport by observing how those in the culture interact with the art-form and each other. One of the participants, "Francis", came up to me after practice one day to speak with me about the effect of Matt's dance on the community as a whole.

> I was just saying that this guy [Matt] has like, he understands hip hop. The essence of hip-hop is just like sharing, enjoying first, not competing with practice. Just enjoy. He was just having fun on the music. (Francis, 2024)

Spreading joy in community is one of the core outcomes of break-dancing. Seeing how so many of the participants find their closest friendships and most meaningful relationships

through break-dancing, it became clear to me that it is an inclusive community insulated by

common values. By being so readily integrated into the community as an outsider, I quickly

learned that so long as you are willing to accept the culture, there is no reason to not be included.

As a dance born out of subjugation, it is committed to equity.

Break-dancing Results in Better Emotional Health Outcomes for Participants

While overall health outcomes aggregated across cognitive, emotional, and physical

parameters had no observable significant difference (Fig. 3), there was a significant increase in

only emotional outcomes for the JUiCE participants compared to non-JUiCE participants

following survey responses (Fig. 4). Measured using the categories created by the CS-Base

model of health outcomes, aggregated scores were comparable with JUiCE participants having a

larger base median CS-Base score. In fact, across all health categories, the JUiCE participants

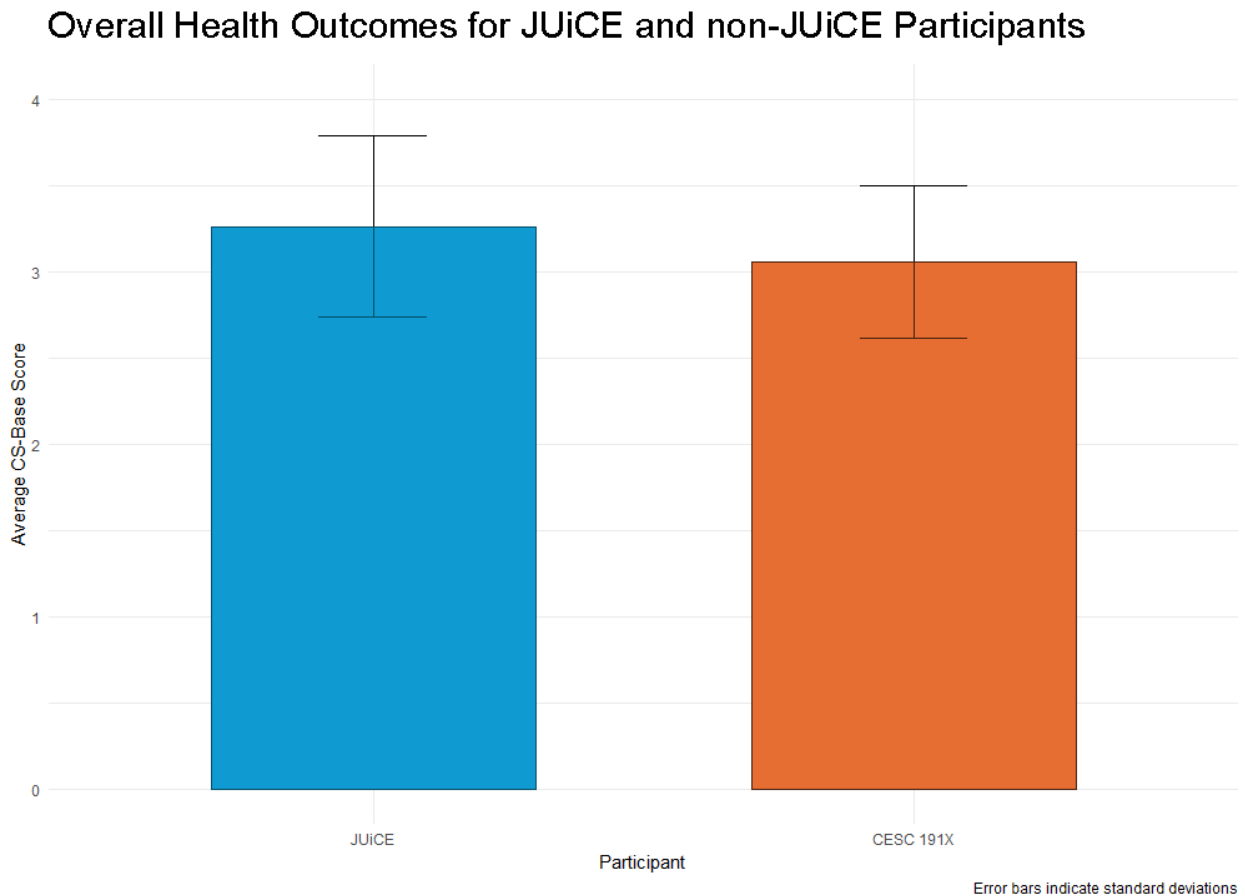appeared to have larger average scores regardless of a significant difference.

Overall Health Outcomes for JUiCE and non-JUiCE Participants

Fig. 3 | Histogram of aggregated survey responses between JUiCE Participants (n = 6) and control responses from CESC 191X students (n = 6). A score of 4.0 represents the best health outcome. Error bars indicate standard deviations. There was no statistically significant difference between the aggregated scores, with a student's t-test p-value of 0.07544 and a 95% confidence interval that includes 0.

Although no significant difference was found in Fig. 3, the p-value for the observed increase in JUiCE participant CS-Base score is close to the threshold value of 0.05, suggesting that there could potentially be a significant increase in overall health outcomes for participants, and additional research should be done. However, the confidence interval includes an effect size of 0, implying that even if there is a significant difference between both populations, there may

be no practical difference in health outcomes. Regardless, these results suggest additional

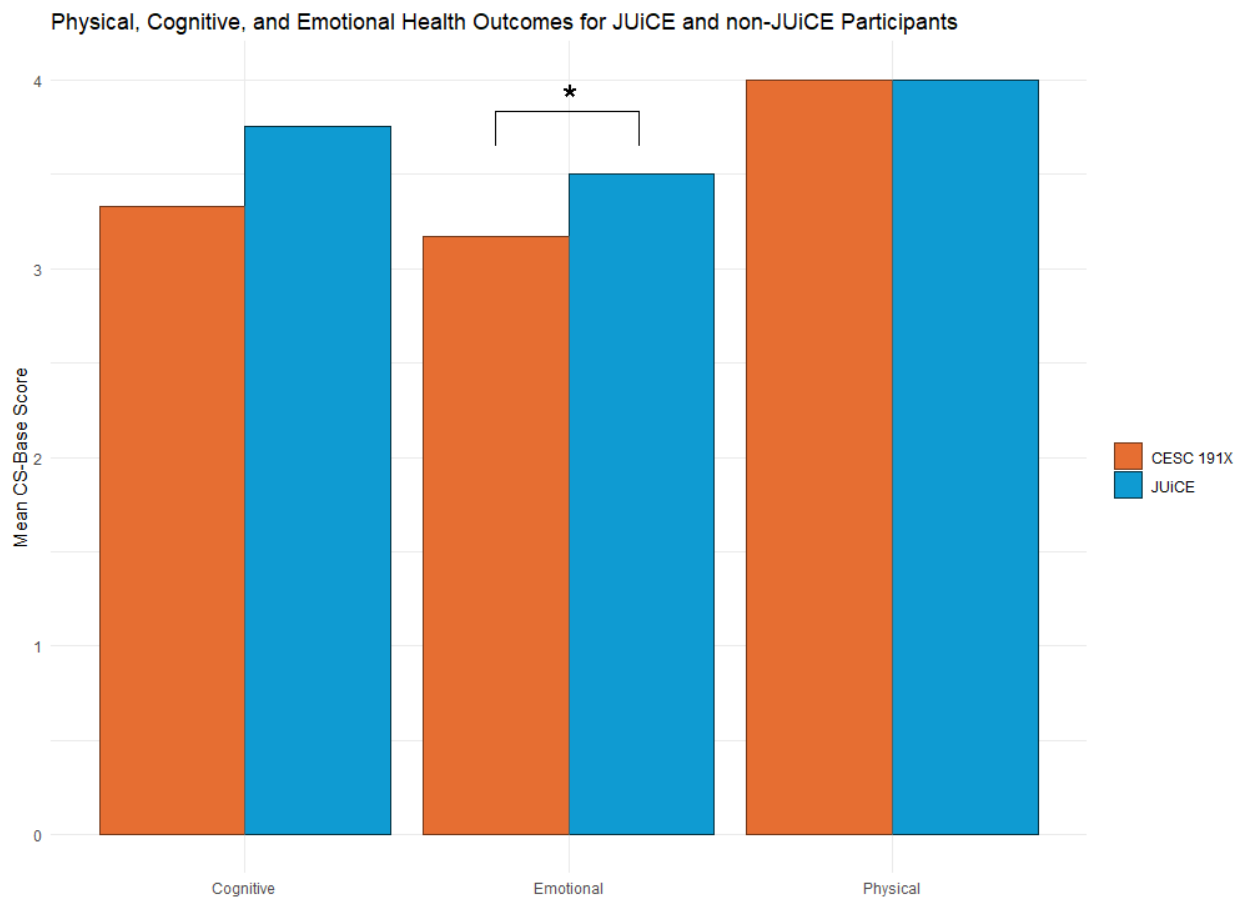research should be done on the population of break-dancing adults.

Fig. 4 | Grouped bar plot of mean CS-Base scores in survey responses between JUiCE

Participants (n = 6) and control responses from CESC 191X students (n = 6) separated by

category of health: cognitive, emotional, and physical. A score of 4.0 represents the best health

outcome. Student's t-tests were conducted between JUiCE and non-JUiCE participants for each

health category. There was a statistically significant increase in emotional health outcomes for

JUiCE participants, with a p-value of 0.0156 and a 95% confidence interval excluding 0.

A significant increase in health outcomes was only observed for emotional measures of health, not cognitive or physical measures. Additionally, the 95% confidence interval for emotional health outcomes did not include 0, meaning that whatever difference between the groups exists, it is a significant increase for JUiCE participants. In fact, both groups had the highest scores of physical health according to the CS-Base score. These results are relatively consistent with the interviews conducted, especially considering that many JUiCE participants find break-dancing as a tool for emotional catharsis to prevent burnout. However, given the small sample size of survey results, more research is necessary to identify potential confounding variables. Many non-JUiCE participants might find similar forms of self-expression or community in involvements other than break-dancing.

Discussion

Implications of Break-Dancing on Health Outcomes

It is clear that break-dancing is fundamentally different from other forms of dance. Because it is fully improvised, many dance moves are rooted in expressions of personal identity. Additionally, the cypher format of break-dancing has a strong emphasis on individual performance within a mutually supportive community. Finally, it is a dance born out of oppression in the 1970s Bronx (Keyes, 2002). In a similar vein, krumping, which is a popular dance style emphasizing aggression and trauma as a spiritual healing response to oppression, has been used as an outlet from inner city gang violence (Ohmer, 2019). Having a performance that embraces violence as a means to heal from it is, according to Ohmer, "re-membering the flesh", a visceral reflection of trauma passed down generations. For populations subjected to long-term violence, powerfully expressive dance like krumping and break-dancing play important roles in mental health.

The mental health benefits of break-dancing in this way have been shared by many

JUiCE participants in interviews and observations (Fig. 2). While the most popular motivations

for break-dancing have focused on self-expression and community, both of these are necessarily

tied to mental health. According to Jean-Burluche (2024), research shows that creative ideation

fosters autonomy and empowerment, positively affecting individual mental health. As a result,

the interviews demonstrate that health benefits stemming from break-dancing should be analyzed

as intertwined rather than discrete categories. The centrality of mental health—and consequently

self expression and community—is corroborated by the results from the surveys, which show

that those participating at JUiCE had significantly higher emotional health outcomes (Fig. 4).

This means that the participants were better able to handle emotional conflict, maintain a positive

mood, and be at peace during stressful times. These results agree with previous literature citing

dance as a healthy means of interacting with the environment, especially if they are violent

environments (Gillam, 2018). Mental health is very clearly a large contributor to positive health

outcomes when break-dancing.

Surprisingly, there were no significant differences in cognitive and physical health for the

population at JUiCE (Fig. 4). According to interviews, many participants shared that

break-dancing gives them a sense of relief when they are tasked with physically demanding jobs,

because they are much better in tune with the limits of their body (Fig. 2). By constantly

practicing new power moves or flexing the body in different ways, break-dancers have a

different relationship with their physical body than those that do not dance. However, this

discrepancy makes sense when considering the surveys failed to capture confounding variables

for the control population, including any potential extracurricular sports that would also

positively impact physical health. Cognitive health outcomes also appear to be unchanged, which

is unexpected when looking at the results of Feinberg et al.'s (2016) case study of Dance for Health, which showed diffusion of learning and problem-solving through self-expression. Additionally, Picard (2000) suggested that cognitive and psychological health outcomes should increase following participation in kinesic dance, yet that was not observed.

Social contagion theory as described by Christakis (2013) is at play at JUiCE. According to this model of human networks, behaviors and affects translate throughout the population of participants simply through interactions with one another. However, it is still an understudied concept that does not properly outline what types of behaviors and affects are most susceptible to transmission. Further research must be done to identify the different conditions necessary for transmission of cognitive health outcomes as opposed to emotional health outcomes, and why emotional health outcomes appear so much more relevant for the population at JUiCE.

As previous literature has outlined, hip-hop constitutes a culture of healing amidst oppression. Consistent with symbolic interactionist theory, the health outcomes individuals have to gain from this institution vary depending on how they interact with it (Aksal et al., 2009). For the participants at JUiCE that are actively seeking break-dancing as mental health therapy, their health outcomes appear very positive. Some participants at JUiCE put less of an emphasis on mental health, instead stating that they break-dance to learn new moves that they can share with their friends. While these participants still showed positive health outcomes in interviews, their individual survey responses do not appear significantly different from the control surveys. Despite whatever motivations people have to participate in break-dancing, the dance form itself necessitates a powerful form of self expression that positively impacts personal and community identity. While Mos Def was right to say that hip-hop embodies the communal experience of

Black life and culture, it also provides a creative outlet for anybody seeking solace from trauma, oppression, or pain (Keyes, 2002).

Future Recommendations for Practitioners

This study has shown that break-dancing has palpable health outcomes, especially for those seeking forms of therapy. For practitioners, it becomes more important than ever to expand access to these spaces. According to the 2009 Citywide Community Needs Assessment conducted by the Los Angeles Department of Recreation and Parks, Los Angeles's most densely populated communities lack access to the already small amount of available green space for residents. In fact, the study found that access to these spaces has positive impacts on social integration, yet are severely lacking in underprivileged neighborhoods and are out of walking distance for its residents (Sullivan et al., 2004). Green spaces are not only vital for social connectedness within a community, but they also offer free-form spaces to practice performance arts such as break-dancing. Practitioners should continue to follow the JUiCE model and use public recreation spaces, or advocate for the creation of new ones, to extend accessibility to break-dancing for a community.

Dance continues to be an undervalued and underfunded form of arts education in public schools. In the report made by SRI Education (2022) tracking the changes in dance education funding from 2006 to 2022, it was found that the greatest increase in arts teachers was in arts-related career technical education (CTE) fields, and not performance arts. In fact, performance arts had the smallest increase in teachers compared to music, visual, and CTE arts. Consistent with the status quo in 2006, most school leaders cite inadequate funding as the most severe barrier to increasing student access to arts, especially in non-affluent communities (Woodworth et al., 2022). For students to have access to break-dancing as a preventative health

measure, an emphasis has to be placed on increasing funding to dance programs in public education. Proposition 28, recently passed in 2022, requires annual funding for California arts education equal to at least 1% of the state budget (Woodworth et al., 2022). While this is a step in the right direction, there is no designation between how funds should be used for music and visual arts as opposed to performance arts. There needs to be explicit policy that serves to fund performance arts, such as break-dancing, as a singular means of building social connectedness and self-expression. Furthermore, more attention should be paid to extracurricular organizations like JUiCE who are seeking to foster healthy outcomes for youth through break-dancing. Increased funding through grants would enable the organization to expand and reach more students, especially disadvantaged students, across the Los Angeles landscape.

An option for practitioners to increase access to performance arts education is by integrating extracurricular dance into existing education models. It is not uncommon to have immersion programs where students at schools are able to go off-site to learn or practice a skill. Most of these programs take place over the Summer, but it would be beneficial for students if practitioners can negotiate with public Los Angeles Unified School District schools to implement programs where students can learn break-dancing as a part of their education. In fact, some participants at JUiCE have mentioned that they learned break-dancing through an immersion program at their respective private schools. By integrating this programming with student education, there will be increased exposure to break-dancing opportunities for students who may otherwise be excluded from performance arts.

Future Recommendations for Researchers

Future research must continue to center the community-engaged methods used in this study while acknowledging its most glaring limitations. For one, the sample size of participants

used in this study should be increased. While there was a wide range of interviews to analyze, only 6 participants participated in the surveying, raising questions about the validity of the quantitative data used in the study. The results were for the most part consistent with previous literature, but a larger sample size would increase confidence in the results. Furthermore, an increased sample size may elucidate some information that is missing from this study, such as any changes in cognitive or physical health outcomes for JUiCE participants.

Additionally, a longitudinal design of this study is a needed future avenue. JUiCE is planning to begin a youth program in the coming months that will host weekly break-dancing classes. These sessions are also planned to include incarcerated youth. A study that can identify tangible health benefits over time for this vulnerable population would be essential in establishing break-dancing as a valid preventative health measure. This study only provides one snapshot in time of the health benefits of break-dancing for a very specific population of young adults.

One recommendation that should be kept relatively consistent for the purposes of identifying the importance of break-dancing in the community is the local scope of the study. By focusing on the relationship between JUiCE participants and Los Angeles itself, much more information regarding mutual support networks and personal identity was able to be garnered from interviews. Break-dancing is now a global sport and culture, but much of its strong conception of community is created at the grassroots level.

Conclusion

Break-dancing has historical roots in the construction of social and cultural capital for the oppressed as a part of the larger hip-hop movement from the 1970s. It has carried on this tradition into the modern day, contributing to healthier lifestyles and communities for its

population in Los Angeles. Amidst a landscape of decreasing public education funding for the arts and decreasing social connectedness among youth, break-dancing offers an outlet for self-expression, emotional vulnerability, and mutual aid.

Organizations like JUiCE are necessary for connecting disadvantaged youth with opportunities for creative expression that are tied to positive health outcomes. For youth that grew up in violent environments, break-dancing is a means of interacting with the environment in a productive way. This study has revealed that these health benefits transcend the previously cited positive psychological and behavioral outcomes, including increased resiliency and initiative when facing mental health or community stressors. Furthermore, break-dancing has a significant effect on one's conception of personal identity as a wholly self-expressive, improvised art-form. According to Margaret Newman's theory of health as expanding consciousness, if break-dancing offers an individual a healthy way to construct their own personal identity, then this will necessarily allow them to interact with their environment in a positive way, resulting in better health outcomes. This was evident at JUiCE, with many of its participants using break-dancing as a means to escape violent neighborhoods.

This study has established that break-dancing is a valuable means of creating positive preventative health outcomes, including: conception of personal identity, conception of community, and emotional health. Looking to the future, longitudinal studies that work with disadvantaged youth to track their health outcomes would be a huge benefit to this growing volume of research. Critical assessment of the ways in which creative expression has a lasting impact on our individual and community health is essential in the search for building healthy outcomes over the lifecourse of community members.

References

Adelekun E. (2018). Discover the meaning and importance of the cypher in breaking. Red Bull.

Aksan N, Kisac B, Aydin M, Demirbuken S. (2009). Symbolic interaction theory. Procedia - Social and Behavioral Sciences. 1(1):902-904.

Andrade C. (2021). The Inconvenient Truth About Convenience and Purposive Samples. Indian J Psychol Med. 43(1):86-88.

Bender K, Saavedra K, Milligan T, Littman DM, Becker-Hafnor T, Dunbar AZ, Boyett M, Holloway B, Morris K. (2023). How mutual aid proliferation developed solidarity and sense of collective responsibility in the early months of COVID-19. Am J Community Psychol.

Brader A. (2011). Songs of resilience. Cambridge Scholars Publishing.

Cofie N, Braund H, Dalgarno N. (2022). Eight ways to get a grip on intercoder reliability using qualitative-based measures. Can Med Educ J. 13(2):73-76.

Dexter VR, Sadiq P, Jun SH, Lois T, Noni G. (2016). Behavioral health correlates of exposure to community violence among African-American adolescents in Chicago. Children and Youth Services Review 69:97-105.

DeWalt KM, DeWalt BR. (2002). Participant Observation: A Guide for Fieldworkers. Rowman Altamira Publishing.

Endo E. (2017). Margaret Newman's Theory of Health as Expanding Consciousness and a Nursing Intervention from a Unitary Perspective. Asia Pac J Oncol Nurs. 4(1):50-52.

Fancourt D, Finn S. (2019). What is the Evidence on the Role of the Arts in Improving Health and Well-Being? A Scoping Review. Copenhagen: WHO Regional Office for Europe.

Fraenkel JR, Wallen NE. (2003). How to design and evaluate research in education. Fifth ed.

New York: McGraw-Hill.

Gordon JS. (1982). Holistic medicine: advances and shortcomings. West J Med. 136(6):546-51.

Guest G, Bunce A, Johnson L. (2006). How many interviews are enough? An experiment with
    data saturation and validity. Field methods. 18(1).

Holt-Lunstad J. (2022). Social Connection as a Public Health Issue: The Evidence and a
    Systemic Framework for Prioritizing the "Social" in Social Determinants of Health.
    Annual Review of Public Health 43:193-213.

Holt-Lunstad J, Smith TB, Layton JB. (2010). Social relationships and mortality risk: a
    meta-analytic review. PLoS Med. 7(7):e1000316.

Jamshed S. (2014). Qualitative research method-interviewing and observation. J Basic Clin
    Pharm. 5(4):87-8.

Jean-Burluche D. (2024). Creative expression and mental health. Journal of Creativity. 34(2).

Kannan VD, Veazie PJ. (2022). US trends in social isolation, social engagement, and
    companionship _ nationally and by age, sex, race/ethnicity, family income, and work
    hours, 2003-2020. SSM Popul Health. 21:101331.

Kawulich BB. (2005). Participant Observation as a Data Collection Method. Forum: Qualitative
    Social Research. 6(2):43.

Keyes CL. (2002). Rap Music and Street Consciousness. University of Illinois Press: Urbana and
    Chicago.

Krabbe PFM, Asselt ADI, Selivanova A, Jabrayilov R, Vermeulen KM. (2019). Patient-Centered
    item selection for a new preference-based generic health-status instrument: CS-Base.
    Value in Health 22:467-473.

 Los Angeles Department of Recreation and Parks. (2009). Citywide Community Needs

Assessment.

Ohmer SS. (2019). "In the Beginning was Body Language" Clowning and Kump as Spiritual \\ Healing and Resistance. CUNY Lehman College. 1(1).

Schoonenboom J, Johnson RB. (2017). How to Construct a Mixed Methods Research Design. Kolner Z Soz Sozpsychol. 69(Suppl 2):107-131.

Sullivan WC, Kuo FE, Depooter SF. (2004). Environment and Behavior. 36(5):678-700.

Williams M, Osman M, Hyon C. (2023) Understanding the Psychological Impact of Oppression Using the Trauma Symptoms of Discrimination Scale. Chronic Stress (Thousand Oaks). 7.

Woodworth K, Benge C, Fields X, Zamora MC, Levin-Güracar E, Boyce J. (2022). Creativity challenge: The state of arts education in California. SRI Education.

Yang YC, Boen C, Gerken K, Li T, Schorpp K, Harris KM. (2016). Social relationships and physiological determinants of longevity across the human life span. Proc Natl Acad Sci USA. 113(3):578-83.

Zhang X, Vermeulen KM, Krabbe PFM. (2024). Different Frameworks, Similar Results? Head-to-Head Comparison of the Generic Preference-Based Health-Outcome Measures CS-Base and EQ-5D-5L. Appl Health Econ Health Policy. 22: 227–242.