

# Preventing Non-Communicable Diseases Through Cultural Dance in Africa: The Example of *kúmbo*'s Dance Among the Diola Communities of Lower Casamance in Senegal

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**Abstract** Cultural dance is recognized as a therapy that supports the physical, social, and mental well-being of communities in Africa. This paper analyses the relationship between the representations, practices and attitudes surrounding the diola cultural dance and the prevention of non-communicable diseases risk factors among diola communities of Lower Casamance. A qualitative approach is used for the study with techniques and data collection tools as literature review, interviews, observation, photos and videos elicitation. Interviews transcribed, descriptions and comments of photos and videos are the main data processing and analysis enabled lexical field identification and significations around *kúmbo* cultural dance associated to psychological stability preservation. Idioms, concepts, and interpretation of expressions in diola fogny language, transcribed and translated in English highlights representations on the body linked to physical activity as a means of preventing non-communicable diseases that can be mobilized for prevention strategies in communities.

**Keywords** Cultural dance, Prevention, Non-communicable diseases, Lower Casamance, Senegal

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## 1. Introduction

Non-communicable diseases (NCDs) are a global public health challenge. According to Laura Pryor, Azevedo Da Silva, and Maria Melichor (2017), these diseases are one of the leading causes of death in the world. Among them, four groups as cardiovascular diseases (17.9 million deaths per year), chronic respiratory diseases (3.9 million), diabetes (1.6 million), and cancers (9.0 million) are responsible for nearly 80% of premature deaths globally (Bigna & Noubiap, 2019). In Sub-Saharan Africa, there is an increase in NCDs in addition to the burden of infectious diseases such as HIV and tuberculosis (Sharman & Bachmann, 2019).

NCDs are linked to some behavioral and modifiable risk factors such as physical inactivity (Ekpenyong et al., 2012; Milton et al., 2014; Hanif et al., 2021). Increasingly, physical inactivity becoming a health issue that “causes 6% of the burden of disease from coronary heart disease, 7% of type 2 diabetes, 10% of breast cancer, 10% of colon cancer, and, almost 9% of premature deaths globally” (Lee et al., 2012). In Sub-Sahara Africa (SSA), physical inactivity contributes

to the burden of NCDs. The prevalence of physical inactivity is respectively “estimated to be 58.84% in Ivory Coast and 69.81% among heart failure patients in Senegal (Ahouéfa et al., 2021; Affangla et al., 2019). A high prevalence of physical inactivity (19,2%) was reported among adults in Nigeria” (Aliyu et al., 2015).

In response to health issues such as physical inactivity, dance (cultural dance specifically) is used in the biomedical field as a therapy against cancer and chronic respiratory diseases, but also, for preventing obesity, depression, stress, and anxiety, with benefits in terms of psychological, psychic, emotional and social well-being (Aktas & Ogec 2005; Muller-Pinget et al., 2012; Philip et al., 2020, Hanna, 2007; Sedibe, 2014; Conner et al., 2021).

Social sciences research highlights the socio-cultural function of dance in Africa. In this context, dance is involved in building cohesion, resolving conflicts, “managing psychological and social tensions” (Evans-Pritchard, 1928: 459; Hanna & Hanna, 1971:238). Similarly, dance is seen as a cultural practice whose purpose is to strengthen social bonds between transnational communities and their family, and “solve family conflicts” in Senegalese communities (Kringelbach, 2013: 30; Canon, 2005). However, despite the importance of cultural dance in the management of biomedical and social health issues, few studies have

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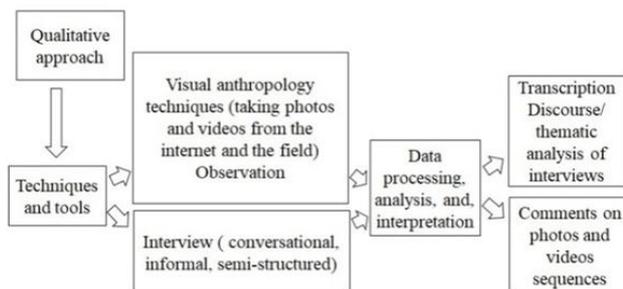
Received: Apr. 21, 2022; Accepted: May 16, 2022; Published: May 24, 2022

Published online at <http://journal.sapub.org/sociology>

focused on the analysis of the relationship between socio-cultural function of cultural dance and NCDs prevention in Africa. Specifically, this work aims to analyze how dance, as a cultural aspect, can contribute to preventing NCDs, but also constitutes a community response to health issues in the African context, particularly in the communities of Lower Casamance in Senegal. The paper is structured as follows: the research approach, which addresses the design and implementation process that led to the expected results; the results, which highlight the established relationship between cultural dance practice and the prevention of NCDs risk factors; the discussion of the results; and the conclusion.

## 2. Methods

For this work, the qualitative approach is used. It is the implementation of the reasoning that led to the expected results through the collection, processing, analysis, and interpretation of data as shown in the following figure.



**Figure 1.** Approach, techniques, data processing, analysis and interpretation (Source: Authors (2022).)

The figure above highlights the approach and research activities carried out. Specifically, it discusses the techniques associated with qualitative research such as taking pictures and videos. For videos, it is about collecting secondary (internet) and empirical data. Observation and photography are carried out during socio-cultural activities. These are, among others, wedding ceremonies, cultural days (period in which socio-cultural activities such as dances, wrestling, exhibitions, etc. initiated by communities originating from the same area take place), twinning (meetings between villages organized by youth associations to strengthen social cohesion and partnership building through various socio-cultural activities) in which the cultural dance is organized. Interviews are conducted with communities in order to understand the representations, practices, and attitudes on cultural dance that may be directly or indirectly linked to the prevention of NCDs risk factors. The processing of data collected (transcription and translation of the recorded interviews and discussions) allowed the thematic/discourse analysis. Videos and photos obtained are projected, commented and interpreted with some key informants (resource persons and researchers in socio-anthropology, linguists) who have experiences and knowledge of cultural aspects in the Diola environment.

### 2.1. Sites and Population

This work is a case study in which the target population consists of key informants, and social strata originating from the Lower Casamance region who share the diola figny language. Region in southwestern Senegal, the Lower Casamance is characterized by cultural originality. The Diola (57.8%) constitute the majority ethnic group in this area (ANSD, 2018; Thomas, 1968), and are subdivided into sub-groups that identify with a language. Thus, there are, among others, the Diola Figny, (Diatta et al., 2020) to whom, like other ethnic groups, certain practices such as the mask dance are attributed.

This population lives mainly in some municipalities, neighborhoods, and villages that are administratively attached to the regions of Dakar, Ziguinchor, and Kedougou. The population concerned by the data collection consists of members of Diola community associations from Lower Casamance, who have knowledge of culture and are involved in the socio-cultural activities of their village where they are originated from. These members include the elderly (60 years old and over), academics, and some members of youth organizations with a special status (presidents of cultural and sports associations), NCDs patients, etc. In addition, the data collection covered all social strata likely to be affected by NCDs risk factors. A sample of 17 participants is determined by saturation during data collection when interviews with communities on dance address similar themes. The sites and populations are purposely chosen.

### 2.2. Techniques and Tools

#### 2.2.1. The literature Review

The literature review was useful for assessing the state of knowledge on the NCDs' risk factors regarding cultural dance. Articles, books, theses, study reports, etc. related to the subject were consulted in some libraries of Cheikh Anta Diop University of Dakar, and also the websites of scientific journals in the following fields: biomedical, socio-anthropological, environmental sciences, public health (The Lancet, American Journal of Dance Therapy, Social Science & Medicine, PLOS ONE, etc.).

#### 2.2.2. Observation

Observation allows us to describe the physical and socio-cultural frame in which the inter-individual and collective interactions that highlight the relationship between communities and their environment during the dance of *kúmbo*, a diola's mask made of 'ronier' tree fibers which cover the dancer (Mark 1983). It is a figure dressed in straw with a stick protruding from the top of its head that spins round and round and is the center of the dance: "*kaboomen ekúmpaay*" (Sapir et al., 1993).

#### 2.2.3. Video and Photography

Visual techniques and tools are used for secondary data

collection on the internet and in the field. These techniques “allow reflection on people’s practices, values, interests, and symbolic discourse” (Alfonso *et al.*, 2004). Images that are obtained with photography and videos highlighted some recurrent practices and actions identified during the dance that may be directly and indirectly related to the prevention of NCDs risk factors. The videos and photos were obtained in the field with the people’s consent.

#### 2.2.4. The Interview

Prior to that, once a relationship of trust has been established, materials (photos and video sequences) are shared (by phone or in the field) with individuals in the communities where interviews were run. In the same way as the socio-constructivist model (Crewell, 2013: 25), exchanges through interview guides focused on the meanings of some practices, individual and collective gestures, their experience, their feeling to understand their representation, their emotion, the codes of conduct, the meaning given to actions as well as the symbolism around the dance. Similarly, the conversational interview with informants facilitated the comprehension of a number of cultural concepts. The lexical field of cultural dance is provided. The aim is to find the meaning of key terms in the diola fogny language that refers to socio-cultural constructs on solidarity, peace culture, social cohesion, life preservation, health maintenance, and NCDs risk factors prevention. is a case study in which the target population consists of key informants, and social strata originating from the Lower Casamance region.

### 2.3. Data Processing and Analysis

The use of visual techniques generated images (photos) as material obtained with the photography on the field and capture of specific actions contained in videos (actions chosen according to their observed recurrence). From the research validation perspective, these images are described, discussed, and commented on with the key informants and the communities in general. Key concepts and terms used by the communities to describe their practices, behaviors, and attitudes associated with dance are decoded after the transcription and translation of interviews that were subject to thematic and discursive analysis.

## 3. Results and Discussion

### 3.1. The Role of *Kúmpto* in Social Stability Associated with the Prevention of NCDs Risk Factors

One of functions of the *kúmpto* is to regulate social life by taking charge of the education of young people. In other words, the role of the *kúmpto* is re-establishing social order in situations where a young person does not respect social norms. According to a key informant: “If a child commits a mistake, all the family is not in peace. The *kúmpto* takes care of his education.” The lack of peace and tranquility

expressed in these words reflects a social condition characterized by anxiety of those around them when a child or family member breaks a pre-established social norm. It is as if the “*kúmpto*” relieves the family from a burden caused by the behavior of a member. The *kúmpto's* dance can therefore be considered as a form of social regulation that aims at preventing anxiety and stress in communities. Consequently, the educational function of the *kúmpto* is inevitably associated with anxiety prevention. Therefore, African dance can prevent future heart disease by alleviating stress in communities in Africa (Conner *et al.*, 2019).

The *kúmpto's* dance plays an important socio-cultural role in the Diola’s culture. One of its roles is to prevent the stress that could result from the feeling of insecurity linked to the social imbalance that manifests itself in situations of conflict, epidemic, famine, etc. that have mystical aspects. Referring to the mystical character of the *kúmpto*, an informant said: “He doesn't go out anyhow. The village may be in a period of famine. There are negative forces in the village that prevent people from having a good harvest. The *kúmpto* goes out to see how he can find a solution for the village.” It seems as if the *kúmpto* raises the hope of social order or contributes to the restoration of social links, reconciliation, and social peace, which will ensure the well-being of the communities. This belief can be found in some of the songs during the dance sessions:

“A word has been spoken: let us forget it.

Forgive us

We will dance this world today

Diénebe invites the *kúmpto saro*” (Girard, 1969: 338).

Through this song, one gets the impression that one of the social functions of the *kúmpto* lies in the settling of disputes and misunderstandings that favors the establishment of reconciliation conditions for peace and tranquility in the community. Socio-cultural activities as the dance of *kúmpto*, reflect community constructions around peace, happiness, and the preservation of health. Consequently, the example of the *kúmpto's* dance is an indication of the sense of solving social issues (health issues in particular) peacefully in African societies. This enables the restoration of social balance characterized by the search for pleasure and/or happiness of the community, in order to relieve tensions that could affect negatively communities' health.

The communities of Lower Casamance, as elsewhere in Africa, carry out cultural practices linked to preventing and managing health issues caused by conflicts situations, tensions, stress, anxiety, etc. Socio-cultural activities such as the *kúmpto's* dance appear as a form of reproduction of the construction of philosophy around peace and reconciliation in Africa. Also, the “*Lamokowang* dance addresses the community challenges of reconciliation and socio-cultural reintegration in a post-conflict context in Uganda” (Karoblis *et al.*, 2020). Social life is thus marked by mystical practices necessary to maintain cohesion and psycho-social stability. Resorting to mysticism could therefore be seen as a form of response construction to social crises that are often at the

origin of anxiety and stress in communities. Anxiety and stress have been identified as risk factors associated with NCDs (Liu et al., 2021).

Women play an important role in creating joy and happiness during the event. The figure below illustrates the manifestations of satisfaction of participants after *kúmpo*'s performance due to women's applause.



**Figure 2.** Jubilations and burst of joy (indicated by red arrow) around the *kúmpo* after his performance (Source: <https://www.youtube.com/watch?v=A-k8t3eFyA0>)

The image above shows the jubilations and jumps of the spectators who show their satisfaction after the dance of the central figure: “*kúmpo*.” In other words, the joy, the happiness that is shown by the jubilations of the participants after the performance of the “*kúmpo*” is closely linked to the actions of the women. The following song illustrates this women's role:

“Siré Sonko, get ready  
The *kúmpo* have come to dance  
Siré Sonko, you must let them dance” (Girard, 1969: 340).

This song illustrates, through the female figure of Siré Sonko, the role of women in the event, particularly the *kúmpo*'s dance. The performance of a *kúmpo* is then appreciated by its capacity to procure happiness and peace linked to social balance perceived as a necessary condition for the prevention of anxiety associated with social issues (tensions, famine, epidemics, etc.). Also, according to Welsh-Asante (2010), Nwaotam is, (like the *kúmpo* of Lower Casamance) one of the mask dance designed to generate good feeling and gives participant emotional and psychological release in Nigeria. These aspects are, in *kúmpo*'s dance, accompanied by the action of women through their applause.

### 3.2. Dance as an Expression of Women's Role in Solidarity Building Related to NCDs Prevention

Dance, translated by the term *jíboom*, in the diola fogny is an activity during which social interactions are observed both between the communities themselves and between the *kúmpo* and the participants. In other words, some practices are associated with social solidarity seen as an important aspect in the preservation of social cohesion. The dance highlights the importance of women's role in socio-cultural

events. In the same way that they take charge of the majority of social life activities related to the well-being and survival of the family, the whole community, particularly women are also at the “heart” of dance. This appears through songs and applause of the women who produce the sound that sets the rhythm of the dance for both the *kúmpo* and participants. Applaud refers to the diola fogny expression *leew*, which is emphatically expressed by the participants to encourage the dancer.



**Figure 3.** Women applaud the *Kumpo* (Source: <https://www.youtube.com/watch?v=A-k8t3eFyA0>)

The figure illustrates the dance event in which women take over the animation with their applause. According to an informant, “there are *kúmpo* when they start dancing people will clap their hands until they stop. He can dance overnight without resting. It is a way of pushing him to do more (...) the song is a way of pushing him to persevere, to do more, to give himself, to surpass himself.” Consequently, the applause of the women which often accompanies the songs creates harmony, a communion between the dancer and the spectators who applaud and sing. This symbiosis of singing and applause makes the social interaction smooth and facilitates the integration of individuals during the dance.

### 3.3. Building Happiness and Preventing NCDs Risk Factors

The *kúmpo*'s dance is punctuated by actions and interactions that refer to the expression of a shared feeling of happiness. The performance of the central figure of the *kúmpo* is sanctioned by shouts of joy, jubilations that consist in paying tribute to him, showing satisfaction. In this regard, one interviewee who commented on the reaction of spectators said: “If people don't do it (shout, shout for joy), it means that the *kúmpo* is not up to the challenge.” The performance of the *kúmpo* then brings a sense of joy to those around him and should in principle be rewarded to achieve social balance.

The shouting and jubilees can be seen as a shared therapy between dancers and spectators. Those who are present but do not dance play an important role in motivating and encouraging the dancers through shouts. The spectators' appreciative roar of joy for the beauty of the performance is also noticeable. They take pleasure in attending the event,

which gives them a feeling of happiness. The roar is an expression of pleasure, happiness but also of relief. Thus, the roar can take the form of a spontaneous outburst that demonstrates the satisfaction, the relief of the spectator during the dance. Spectators also play an important role in community mobilization for the dance. In fact, according to one informant: “the screams are loud. They can be heard from far away.” This generates curiosity among residents who express their desire through these words in diola fogny: (*ujaal ujukaan* which means “let's go and see” in English. This implies the desire to attend the show but also to dance according to the situation, as the following passage shows:

Once, we were attracted by a dance from a distance. We were revising our lessons and all of a sudden, we heard shouts that made us want to go and see what was going on. Then we did everything we could to get there. When we arrived, we came across a man who was dancing. He was dancing with a harmony that ended with a spectacular action that made people shout. (...) *ukámunaaw wu sínsuum* (literally the feet are good. This conveys the idea that he has mastered the art of dance).

Thus, the participants shout at the beauty of the dancer's performance. This also highlights the aesthetic dimension of the dance, which gives pleasure. Dance appears here as an art whose harmonious gestures bring pleasure and joy to spectators. Moreover, according to Thomas (1959: 353), “the diola dancer is the true artist who creates a fusion with the group, a state of mind which is already true depersonalization.” Dancing is therefore an activity marked by the expression of shared happiness.

The *kúmpos* dance is an event in which the expression of shared happiness within the community is observed. The search for happiness and pleasure through the interactions between dancers and participants promotes the strengthening of social bonds, solidarity, and the establishment of conditions associated with NCDs management. In the same way, results from research show the role of happiness in the prevention of NCDs in Bhutan, South East Asia. Indeed, the risk factors for NCDs are found in a context marked by a lack of education and practical knowledge about NCDs prevention. Yet in this community, “finding happiness in any situation is a virtue” (Kohori-Segawa *et al.*, 2020).

### 3.4. Reproduction of the Concept of Accountability, Social Empowerment and NCDs Prevention

The dance is marked by declamations of words, phrases, or concepts. Some do not hesitate to invite the audience to clap their hands louder with words like *jileew* (clap your hands) to further encourage the dancers. It is as if the dance is a moment of sharing in which every action taken by an individual requires a response from the participants. The lack of response can be interpreted as a lack of interest in the invitation to dance, to share moments of joy. This attitude can be seen as a refusal to respond favorably to the honor shown by those around them.

Dancing is also an activity during which social values

associated with accountability, honor towards loved ones often carried by women during the event are observed. Indeed, in some of the videos or photos, actions that consist in throwing the scarf at a third person (parents and others) are seen.



**Figure 4.** Women dancing and send the scarf to another (Source: Authors (2022).)

This throwing of the scarf is not gratuitous. It is affection and attachment expressed to the person on whom the scarf is thrown. It also shows the “good relationships” that exist in families and community members. Thus, the person receiving the scarf should dance or make a gesture of honor. According to key informants: “even if you can't dance, to honor, you stand up, you move around with some gestures (...) or lift the scarf before giving it back (...). The scarf is an honor for the person who receives it.” This could be a vivid expression of the popular conception according to which “honor cannot be refused.” That's why for some, “taking the scarf without doing anything in return is very frowned upon.” The throwing of the scarf can be a burden or a social pressure to the point that “everyone withdraws and gives priority to the one to whom the scarf was thrown.” All attention is focused on the person receiving the scarf who should respond favorably to a “good deed” expressed towards him or her. Therefore, dancing is a moment of social values manifestations such as accountability to a loved one who shows us affection, honor, esteem, etc. Dancing is therefore a form of reproduction of social values carried mainly by women. This representation could prevent possible situations of social inequality, tension, conflict, etc. in social relations, which are often the cause of anxiety or stress. Cultural dance can reduce in this context, NCDs risk factors exposure such as stress (Olvera, 2013). Therefore, challenging NCDs in Africa needs to take into account the cultural heritage of different cultures and traditions that have their own concept of health (Osuji, 2014).

Some practices associated with social solidarity are also observed during the dance. For example, joining someone in the circle to dance by leaning on his shoulder highlights social values related to solidarity, empathy. This action is a manifestation of supporting another, which is translated into

the diola fogny language by the expression *karambenoor*, which means “helping each other” in English. Moreover, according to some interviewees: “someone who knows how to dance can help you. He can (...) dance for you.” This quotation reveals that dance is permeated by actions relating to supporting and assisting someone during an ordeal or to relieve him from a weight. It is also a moment of solidarity, a mark of affection towards a member, parents, etc.

Holding the shoulder of others for dancing is an act that consists not only in helping but also in inducing someone to make more effort, to surpass herself, and thus to take up the challenge of knowing how to dance well. The action of holding someone's shoulder has a symbolic dimension, in social relations. It is a way of relieving a person of a social burden and stress, particularly in difficult situations, which is expressed through the diola fogny expressions *goren eniiley* (“shake your body”, “to relieve oneself”); “*loj uwonooraw*” (in the sense of forgetting one's worries, removing stress).

The presence of participants contributes to the setting and can be a source of motivation for the dancer. The gaze of others can be perceived as a form of expression of interest in the dance and therefore gives the dancer more pleasure. This can lead to a surpassing of oneself: “the more people look at me, the more I want to dance.” In this context, the group takes charge of the dance. Moreover, the large number of participants and spectators influences in most cases the motivation and community mobilization for the dance. The dance appears as an activity in which happiness, generosity, and shared solidarity are expressed. It is a resilience strategy for facing social disorders characterized by tensions, conflicts, etc. that may affect individual and collective psychosocial stability.

The *kúmpto*'s dance is a moment of social mobilization, communion, joy, and shared happiness associated with the prevention of NCDs risk factors. However, the *kúmpto*, like the others mask dance in general as *esaamaay* and *ñaas* that accompanies the “*kúmpto*”, monitors women and uninitiated boys (Mark, 1983), may be threatened with disappearance in a context marked by the change in lifestyle, modernity, development, and the increasing use of Information and Communication Technologies (ICTs), which is accompanied by social isolation. Social mobilization in the community is increasingly reduced and inhibits individual and collective motivation around cultural dance, one of the purposes is preventing health issues as NCDs. This may influence behaviors associated with physical inactivity in the sense that the use of technology reduces movement (from walking to dancing) and social interaction. This may cause social isolation of communities and increase the risk of engaging in behaviors associated with physical inactivity (Hämmig, 2019).

Social isolation could reduce exposure to the environment that is in part of the event's setting, which most often takes place in public spaces characterized by vegetal biodiversity. Indeed, community exposure to green spaces in neighborhoods reduces the risk of type 2 diabetes, obesity and promotes physical activity (De la Fuente et al., 2021).

The conservation of cultural elements, particularly dance, could thus make possible biodiversity and environment safeguard by promoting better conditions for the prevention of NCDs. Being cultural capital, dance is a form of verbal communication (lexical field through the concepts used), gesture but above all social (interaction) which can constitute a strategy of community resilience in facing health issues as NCDs in Africa, particularly in Lower Casamance.

Dance is a practice linked to some concepts and codes that refer to a way of life. Among these, the term *kafikis* in diola fogny is noted and represents the last phase of an individual's action. According to one interviewee, “the Diola always lifts his leg when he finishes the dance. That's *kafikis*. He finishes the dance, he makes a grimace, he lifts his leg, that's is *kafikis*.” to encourage the dancer as illustrated in the figure below.



Figure 5. *kafikis* action of a dancer (Source: Authors (2022).)

The image above highlights the playful dimension of the dance, which consists of pleasing participants. The action of *kafikis* followed by grimaces most often makes the communities laugh. This could also refer to the fact that an individual's dance ends in shared joy. This is the product of action on the part of an individual who expresses the pleasure of dancing but also seeks the happiness of those around him. The search for the pleasure/happiness of one's neighbor could be seen here as a fundamental element in constructing social relations, often a source of peace and social cohesion. This action is also a form of expression of complicity, feelings of satisfaction and shared joy. This is why, when someone refers to dance event, he says: *Fuken súnsum tambi* (“yesterday dance event was good”). Laughter could be considered here as construction whose purpose is to create a climate of peace, a feeling of joy, and shared pleasure which is necessary to maintain the psycho-affective health in communities and also helps to prevent NCDs. Laughter is included in stress prevention therapy. Decreasing stress-making hormones found in the blood, laughter can mitigate the effects of stress (Yim, 2016), considered as NCDs risk factors such coronary heart diseases (Steptoe & Kivimäki, 2012).

### 3.5. Dance and Representation of the Body Associated with NCDs

Dance is also associated with representations on relationship with the body. This relationship is encapsulated in concepts uttered during the activity and shows how communities mobilize themselves to carry out the event. In addition to songs accompanied by applause to set the rhythm of the dance, the communities often use the diola fogny term *goroor* which also refers to the action of sketching dance steps. Indeed, the expression means, “to shake the body”. Dancing, through the expression *goroor*: “to shake the body” could be considered here as a physical activity that allows the prevention of some pathologies such as NCDs. Moreover, one informant, who suffers from diabetes, recommends people to “move” for preventing diseases associated with sugar excess consumption. She said: “You eat a lot, you finish eating what you like, the sweet stuff, and then you don't move around, and people should be careful about that.”

The fact of moving is associated with physical activity that could prevent chronic diseases such as diabetes. This aspect is taken into account (apart from conventional physical activity or practiced according to the Western model such as walking, running, fitness, etc.) by the *kúmbo's* dance. Beyond the mystical, folkloric, playful character, etc., the *kúmbo's* dance is an opportunity for some people to move, to practice physical activity. This is the case of one interviewee who referred to the *kúmbo* dance and said: “Sometimes if you sit here, you can hear the young people over their dancing. You can walk over there. If you arrive and shake your body a bit.” As a result, communities have, by increasing interest in physical activity (Conner *et al.*, 2019), developed socio-cultural activities such as dance that directly or indirectly contribute to the management of health issues such as non-communicable diseases (Yamasaki *et al.*, 2021). In addition, dance appears, in this context as African holistic health because it takes into account the whole aspects of the disease: body, mind, and spirit (Ubani, 2011) that can be associated with NCDs prevention.

## 4. Conclusions

Cultural dance among the Diola communities of Lower Casamance, appears to be one example, among many others, of a community resilience strategy in facing NCDs issues in Africa. However, with the phenomenon of globalization, which is accompanied by changes in lifestyle, we are increasingly witnessing the decline or even disappearance of cultural practices such as cultural dance. The responses to NCDs' health issues must take into account and mobilize the cultural capital of communities. Therefore, communities' responses can include the organization of dance activities over a given period, supported by the local authorities (village chief and/or traditional leader). The cultural dimension of dance could particularly be integrated into the discussions during meetings and exchanges in decision-making fora. For this to happen, the mobilization of

resources at the community level is more than needed. It is a question of giving priority to and reflecting on forms of motivation for local artists (drummers in villages or *ekontin* players in the Kassa environment: *ekontin* is an instrument, a three-string guitar made from a calabash).

The Lower Casamance communities living in other parts of the country could, through the organization of cultural events, influence behavioral changes towards the promotion of physical activity (through dance) and the creation of a social climate that can foster stronger ties and social cohesion. In addition, it would create conditions that are closer to the socio-cultural realities of the communities, but also a means of transmitting to future generations the cultural values of the group associated with the prevention of health issues, particularly the risk factors for NCDs.

## ACKNOWLEDGEMENTS

The authors acknowledge:

Yacinthe Sambou, Teacher and Researcher, Institute of Environmental Sciences, Cheikh Anta Diop University;

Lamine Bodian, Lecturer, Department of Linguistic, Cheikh Anta Diop University;

Dr. Papa Waly Bakhom, Institute of Environmental Sciences, Cheikh Anta Diop University and;

MS. Mamadou Lamine Sané, Institute of Environmental Sciences, Cheikh Anta Diop University, for technical assistance and proofreading.

## REFERENCES

- [1] Affangala, D. A., Ba, F., Ndiaye, D., Niang Mboup, W., Wabo, A. S., Dione, J.-M. A., & Leye, M. (2019). Épidémiologie et étiologie de l'insuffisance cardiaque chez l'adulte au centre DIABCARMET de l'hôpital Saint Jean de Dieu de Thiès (Sénégal). *Revue Africaine de Médecine Moderne*, 6(2), 29-37. <http://rafmi.org/index.php/rafmi/article/view/342>.
- [2] Agence Nationale de la Statistique et de la Démographie. (2018). *Situation Economique et Sociale Régionale*. <https://www.ansd.sn/ressources/ses/SES-Ziguinchor-2015.pdf>.
- [3] Ahouéfe, N. L., Cissé, I., Soro, L. C., Yépié, A. H., Diagou, J. J., Yao, J.-J. K., & Atchibri, L. A. (2021). Associated Risk Factors of Non-Communicable Disease in Three Sites across Ivory Coast: An Urban (Cocody), Peri-Urban (Abobo), and Rural (Yocoboué). *Food and Nutrition Sciences*, 12(5), 462-478. <https://doi.org/10.4236/fns.2021.125036>.
- [4] Aktas, G., & Ogce, F. (2005). Dance as a therapy for cancer prevention. *Asian Pac J Cancer Prev*, 6(3), 408-411. <https://pubmed.ncbi.nlm.nih.gov/16236009/>.
- [5] Akunna, G. I. (2015). An African Igbo Perspective on Mourning Dances and Their Application to Dance/Movement Therapy. *American Journal of Dance Therapy*, 37, 39-59. <https://link.springer.com/article/10.1007/s10465-015-9190-0#citeas>.

- [6] Alfonso, A. I., Kurti, L., & Pink, S. (2004). *Working Images, Visual Research and Representation in Ethnography* (1<sup>re</sup> éd.). Routledge.
- [7] Aliyu, S. U., Chiroma, A. S., Jajere, A. M., & Gujba, F. K. (2015). Prevalence of Physical Inactivity, Hypertension, Obesity and Tobacco Smoking: A Case of NCDs Prevention among Adults in Maiduguri, Nigeria. *American Journal of Medical Sciences and Medicine*, 3(4), 39-47. DOI: 10.12691/ajmsm-3-4-1.
- [8] Bigna, J. J., Bigna, J.J., & Noubiap, J. J. (2019). The rising burden of non-communicable diseases in sub-Saharan Africa. *The Lancet Global Health*, 7(10), 1295-1296. [https://doi.org/10.1016/S2214-109X\(19\)30370-5](https://doi.org/10.1016/S2214-109X(19)30370-5).
- [9] Canon, S. D. (2005). Music, Dance, and Family Ties: *Ghanaian and Senegalese Immigrants in Los Angeles*. [Doctoral thesis, The University of Texas at Austin]. ProQuest (3178306). <https://www.proquest.com/openview/179ba99723cc53d68e4a8045713d1584/1?cbl=18750&diss=y&loginDisplay=true&pq-origsite=gscholar>.
- [10] Conner, K. O., Patterson-Price, J., & Faulkner, N. (2021). "African Dance Is My Therapy": Perspectives on the Unique Health Benefits of West African Dance. *Journal of Dance Education*, 21(2), 72-81. <https://doi.org/10.1080/15290824.2019.1678751>.
- [11] Conner, K. O., Patterson-Price, J., & Faulkner, N. (2019). Health Benefits of Culturally Oriented Dance. In S-H. Lee., M.L. Morris, & S.V. Nicosia (Eds.), *Perspectives in Performing Arts Medicine Practice: A Multidisciplinary Approach* (p.127-142). Springer. Perspectives in Performing Arts Medicine Practice: A Multidisciplinary Approach - Google Livres.
- [12] Creswell, J. W. (2013). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches* (3<sup>e</sup> éd.) [E-book]. Sage. <http://www.ceil-conicet.gov.ar/wp-content/uploads/2018/04/CRESWELLQualitative-Inquiry-and-Research-Design-Creswell.pdf>.
- [13] De la Fuente, F., Saldías, M. A., Cubillos, C., Mery, G., Carvajal, D., Bowen, M., & Bertoglia, M. P. (2021). Green Space Exposure Association with Type 2 Diabetes Mellitus, Physical Activity, and Obesity: A Systematic Review. *Environmental Research and Public Health*, 18(1). <https://doi.org/10.3390/ijerph18010097>.
- [14] Diatta, C. S., Sow, A. A., & Diouf, M. (2020). Customs and traditional management practices of coastal marine natural resources in Lower Casamance: Perspectives of valorisation of endogenous knowledge. *Journal of Ecology and The Natural Environment*, 12(2), 46-64. <https://doi.org/10.5897/JENE2019.0793>.
- [15] Ekpenyong, C.E., Udokang, N.E., Akpan, E.E., & Samson, T.K. (2012). Double Burden, Non-Communicable Diseases And Risk Factors Evaluation In Sub-Saharan Africa: The Nigerian Experience. *European Journal of Sustainable Development*, 12(2), 249-270. <https://doi.org/10.14207/ejssd.2012.v1n2p249>.
- [16] Evans-Pritchard, E. E. (1928). The Dance. *Africa: Journal of the International African Institute*, 1(4), 446-462. <https://www.jstor.org/stable/1155912>.
- [17] Girard, J. (1969). *Genèse du pouvoir charismatique en Basse Casamance*. IFAN.
- [18] Hanif, A. A. M., Hasan, M., Khan, S. A., Hossain, M., Shamim, A. A., Mitra, D. K., ... Mridha, M. K. (2021). Prevalence and associated factors of insufficient physical activity among elderly people in Bangladesh: a nationally representative cross-sectional study. *BMJ Open Sport & Exercise Medicine*, 7. doi:10.1136/bmjsem-2021-001135.
- [19] Hämmig, O. (2019). Health risks associated with social isolation in general and in young, middle and old age. *PLoS ONE*, 14(8). <https://doi.org/10.1371/journal.pone.0222124>.
- [20] Hanna, J. L. (2007). The Power of Dance: Health and Healing. *The Journal of Alternative and Complementary Medicine*, 1(4), 323-331. <https://doi.org/10.1089/acm.1995.1.323>.
- [21] Hanna, W., & Hanna, J. L. (1971). The social significance of dance in Black Africa / Signification sociale de la danse en Afrique Noire. *Civilisations*, 21(2), 238-242. <https://www.jstor.org/stable/41229149>.
- [22] Karoblis, G., Nannyonga-Tamusuza, S.A., Kibirige, R. (2020). *Dancing Reconciliation and Re/ integration: Lamokowang and Dance-Musicking in the Oguda- Alé Post-War Communities of Northern Uganda*. [Doctoral thesis, NTNU]. NTNU Open (1503-8181). <https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/2730545?show=full>.
- [23] Khosravi, S., Farzadfar, F., Larijani, B., Mirzaei, M., & Haghdoost, A. A. (2019). Trend and projection of mortality rate due to non-communicable diseases in Iran: A modeling study. *PLoS ONE*, 14(2). <https://doi.org/10.1371/journal.pone.0211622>.
- [24] Kohori-Segawa, H., Dorji, C., Dorji, K., Wangdi, U., Dema, C., Dorji, Y., ... Imanaka, Y. (2020). A qualitative study on knowledge, perception, and practice related to non-communicable diseases in relation to happiness among rural and urban residents in Bhutan. *PLoS ONE*, 15(6). <https://doi.org/10.1371/journal.pone.0234257>.
- [25] Kringelbach, H. N. (2013). *Dance Circles: Movement, Morality and Self-Fashioning in Urban Senegal*. Berghahn Books. [https://books.google.sn/books?hl=fr&lr=&id=gPQcAgAAQBAJ&oi=fnd&pg=PR3&dq=Cultural+dance+and+chronic+disease+prevention+in+Senegal&ots=7Rv19SjENo&sig=blLmXwhkTOHq7LYh0Tv31duGZY&redir\\_esc=y#v=onepage&q&f=false](https://books.google.sn/books?hl=fr&lr=&id=gPQcAgAAQBAJ&oi=fnd&pg=PR3&dq=Cultural+dance+and+chronic+disease+prevention+in+Senegal&ots=7Rv19SjENo&sig=blLmXwhkTOHq7LYh0Tv31duGZY&redir_esc=y#v=onepage&q&f=false).
- [26] Lee, I.-M., Shiroma, E. J., Lobelo, F., Puska, P., Blair, S. N., & Katzmarzyk, P. T. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *The Lancet*, 380(9838), 219-229. [https://doi.org/10.1016/S0140-6736\(12\)61031-9](https://doi.org/10.1016/S0140-6736(12)61031-9).
- [27] Mark, P. (1983). Diola masking traditions and the history of the Casamance (Senegal). *Paideuma: Mitteilungen zur Kulturkunde*, 3-22. <https://www.jstor.org/stable/41409888>.
- [28] Milton, K., Macniven, R., & Bauman, A. (2014). Review of the epidemiological evidence for physical activity and health from low- and middle-income countries. *Global Public Health*, 9(4), 369-381. <https://doi.org/10.1080/17441692.2014.894548>.
- [29] Muller-Pinget, S., Pataky, Z., Golay, A., Armand, S., & Allet, L. (2012). Déficits fonctionnels des personnes obèses et rôle de la danse-thérapie. *Revue médicale suisse*, 8. [https://www.hug.ch/sites/interhug/files/structures/enseignement\\_therapeutique\\_pour\\_maladies\\_chroniques/documents/de\\_ficits\\_fonctionnels.pdf](https://www.hug.ch/sites/interhug/files/structures/enseignement_therapeutique_pour_maladies_chroniques/documents/de_ficits_fonctionnels.pdf).

- [30] Philip, K. E. J., Katagira, W., & Jones, R. (2020). Dance for Respiratory Patients in Low-Resource Settings. *JAMA*, 342(10), 921-922. doi:10.1001/jama.2020.15426.
- [31] Osuji, P. I. (2014). *African Traditional Medicine: Autonomy and Informed Consent*. Springer. African Traditional Medicine: Autonomy and Informed Consent - Peter Ikechukwu Osuji - Google Livres.
- [32] Robinette, J. W., Charles, S. T., & Gruenewald, T. L. (2018). Neighborhood cohesion, neighborhood disorder, and cardiometabolic risk. *Social Science & Medicine*, 198, 70-76. <https://doi.org/10.1016/j.socscimed.2017.12.025>.
- [33] Pryor, L., da Silva, M. A., & Melchior, M. (2017). Mental health and global strategies to reduce NCDs and premature mortality. *The Lancet Public Health*, 2(8), 350-351. [https://doi.org/10.1016/S2468-2667\(17\)30140-8](https://doi.org/10.1016/S2468-2667(17)30140-8).
- [34] Sedibe, H. M., Kahn, K., Edin, K., Gitau, T., Ivarsson, A., & Norris, S. A. (2014). Qualitative study exploring healthy eating practices and physical activity among adolescent girls in rural South Africa. *BMC Pediatrics*, 14(211). <https://doi.org/10.1186/1471-2431-14-211>.
- [35] Sharman, M., & Bachmann, M. (2019). Prevalence and health effects of communicable and non-communicable disease comorbidity in rural KwaZulu Natal, South Africa. *Tropical Medicine and International Health*, 24(10), 1198-1207. <https://doi.org/10.1111/tmi.13297>.
- [36] Steptoe, A., & Kivimäki, M. (2012). Stress and cardiovascular disease. *Nature Reviews Cardiology*, 9, 360-370. <https://doi.org/10.1038/nrcardio.2012.45>.
- [37] Thomas, L.-V. (1959). *Les Diola: Essai d'analyse fonctionnelle sur une population de Basse-Casamance*. IFAN.
- [38] Thomas, L.-V. S. (1968). Tradition et modernité chez les Diola de Casamance. *Bulletin de l'Institut Fondamental Afrique Noire*, 4, 1488-1526.
- [39] Ubani, L.U. (2011). *Preventive Therapy in Complementary Medicine*. Xlibris Corporation. Preventive Therapy in Complimentary Medicine: Volume I to Liberate Humankind ... - Dr. Lumumba Umunna Ubani - Google Livres.
- [40] Welsh-Asante, K. (2010). *African Dance*. Chelsea House Publishers. African Dance - Kariamum Welsh-Asante - Google Livres.
- [41] Yim, J. E. (2016). Therapeutic Benefits of Laughter in Mental Health: A Theoretical Review. *Tohoku J. Exp. Med*, 239(3), 243-249. [https://www.jstage.jst.go.jp/article/tjem/239/3/239\\_243/\\_pdf](https://www.jstage.jst.go.jp/article/tjem/239/3/239_243/_pdf).