



Tuberculosis-Related Stigma Among Healthcare Workers in Tanzania: Level, Experience and Manifestations

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Abstract: *Background:* TB-related stigma among healthcare workers (HCWs) can negatively impact on health-seeking behavior, treatment adherence, TB treatment completion, and the overall quality of TB services. Yet, the dimensions, experiences, and manifestations of TB-related stigma among HCWs are largely unknown in our region, particularly in the context of Tanzania. This knowledge gap prompted the researchers to design the current study. *Methods:* This cross-sectional study employed both quantitative and qualitative techniques to collect data on TB-related stigma among HCWs who provide TB services in 20 selected health facilities in 5 regions (provinces) of Tanzania. Data analysis was performed using quantitative descriptive and thematic analysis methods. The results have been presented as frequency tables with respective percentages, figures, and quotes. *Results:* Seventy-nine (79) HCWs were recruited. The overall level of perceived TB-related stigma among HCWs was 52.57%, predominated by negative attitudes and stigmatizing behaviors towards TB patients. About one-fifth (21.52%) of the HCWs were stigmatized because their work involved interacting with TB-infected people. The common manifestations of TB-related stigma among HCWs were isolation, avoidance, and underappreciation both at the workplace and in the community. Such actions were mostly driven by fear of contracting TB. *Conclusion:* Our findings revealed that HCWs do not only have to contend with a high level of perceived TB-related stigma but are also stigmatized because of attending to TB patients. This stigma threatens to undermine the non-discriminatory access and quality of TB services. Therefore, there is an urgent call for reciprocal attention aimed to reduce TB-related stigma in healthcare settings to improve, ultimately, TB control in Tanzania.

Keywords: Tuberculosis, Stigma, Healthcare Workers, Health Facilities, Tanzania

1. Introduction

Tuberculosis (TB) is a fatal infectious disease that constitutes a major public health problem in most resource-limited countries, including Tanzania [1], with a recorded incidence rate of 253 per 100,000 population, hence making Tanzania one of the 30 highest-TB burden countries in the world [2]. This reality calls for multi-strategies aimed to overcome the major barriers to achieving TB control and prevention. These barriers include TB-related stigma, which is one of the well-recognized social determinants of health, that also presents a major impediment to ending TB epidemics [3]. In 2018, the UN General Assembly's high-level meeting on tuberculosis endorsed a political declaration to eliminate stigma and all types of TB-related discrimination by 2022 [4].

Stigma is a complex occurrence/process that is shaped by institutional and community norms, interpersonal factors, and attitudes. It is often characterized by labeling, stereotyping, and separation, hence leading to status loss, negative self-image, and discrimination, all of which occur in the context of power [5–8]. Stigma differs from discrimination, which refers to unfair and unjust action targeting an individual or group based on real or perceived status or attributes. In most cases, it is regarded as the endpoint of the stigmatization process [9]. Even though TB-related stigma is context-based, among HCWs it is of particular interest since it can negatively affect people seeking health services at a time when they are at their most vulnerable. Studies have shown that TB-related stigma can delay the seeking of TB diagnosis and care, interrupt treatment, and lead to poor treatment outcomes [5, 8, 10]. In healthcare settings, HCWs can either be on the receiving end or vice-versa as the stigmatized or stigmatizer. Also, in healthcare settings, stigma can take various forms such as denial of care, provision of

substandard care, and physical and verbal abuse. Other manifestations of stigma include making people with stigmatizing attributes wait longer or passing their care off to junior colleagues [11, 12]. On the other hand, stigma directed at HCWs can occasion cause work absenteeism, demotivation, non-disclosure of TB status to colleagues, and reluctance to access and engage in care, thus undermining the quality of care and demoralizing working staff.

Such stigma can have a polarizing influence since HCWs are key players in the global efforts to end TB, who serve as a frontline workforce in providing TB diagnosis, treatment, and care. Moreover, they can be instrumental in raising awareness, advocating for necessary changes (e.g., TB stigma reduction), and implementing TB infection control interventions. To tap into such potentials in response to TB control and stigma reduction, we need to understand both the dimensions and dynamics underlying TB-related stigma among HCWs. The present study, therefore, assessed the level, experience, and manifestation of TB-related stigma among HCWs to inform interventions for TB control and prevention in Tanzania.

2. Material and Methods

2.1. Study Design, Study Area, and Settings

This paper is part of a larger study that set out to assess and characterize TB-related stigma and gender-based violence in Tanzania. The study deployed a cross-sectional design to collect quantitative and qualitative data from five regions of Tanzania in 20 selected health facilities that provide TB services in both rural and urban settings between September 2021 and February 2022. The list of the regions and health facilities involved in the study is presented in Table 1.

Table 1. List of regions and selected health facilities.

Region	Health facilities	
	Urban	Rural
Kilimanjaro	Mawenzi Hospital	Huruma Hospital
	St Joseph Hospital	Kibosho Hospital
Mwanza	Sekou Toure Hospital	Misungwi Hospital
	Nyamagana Hospital	Sengerema Hospital
Njombe	Njombe Hospital (Kibena)	Ilembula Hospital
	St. Joseph Hospital (Ikolu)	Makete Hospital
Pwani	Tumbi Hospital	Kibiti Health Center
	Mkoani Health Center	Mkuranga District Hospital
Unguja Kaskazini	Kivunge Health Centre	Kidoti PHCU
	Mahonda Health Centre	Kitope PHCU

2.2. Study Population, Inclusion, and Exclusion Criteria

The study recruited HCWs in health facilities, preferably at TB clinics. Work experience of having provided TB services for at least six months was a major inclusion criterion. However, the study excluded HCWs who had never provided

TB services and those who failed to provide informed consent.

2.3. Sampling Strategy and Sample Size

Based on the similarities of their geo-cultural characteristics, four zones (east coast, northern, western central, and southern Highlands) were created from the 26 regions of Tanzania

Mainland for this study. Another five other regions from Tanzania-Zanzibar constituted one zone. As each zone had at least five regions, we performed simple random sampling to select one region. This resulted in the selection of Pwani (Coast), Kilimanjaro, Mwanza, and Njombe from Tanzania Mainland, and Unguja Kaskazini from Tanzania - Zanzibar. Using 2020 TB notification data from the National Tuberculosis and Leprosy Programme (NTLP), we created a list of the top 20 health facilities with high TB notification for each selected region (10 from rural settings and 10 from urban settings). Then, we chose only two health facilities at random from the lists generated based on the settings. This sampling strategy led to the selection of four health facilities in each region and 20 health facilities across all the five regions. On the other hand, at least 3 HCWs who met the inclusion criteria and none of the exclusion criteria were recruited from each selected health facility. In all, we recruited 79 participants from all the study sites.

2.4. Data Collection Procedures

Data collection was conducted by a research team that had been trained on the purpose, methods, tools, and research ethics related to this study. At the respective health facilities, eligible and consenting participants were invited to participate. Data were collected through face-to-face interviews using a semi-structured questionnaire developed by the STOP TB Partnership [13] but adapted to fit the Tanzania context and translated into the KiSwahili language. The tool used for data collection was designed to collect participants' demographic information. Also, it was integrated with Corrigan's nine-domain Attribution Scale to assess TB-related stigma among HCWs. The scale contains 9 domains for assessing stigma in the TB context; fear, pity, help, avoidance, blame, anger, segregation, danger, and coercion of TB treatment). Moreover, it contained open-end questions aimed to assess the experience of TB-related stigma among HCWs and its manifestation. During the field, data were collected and stored using an android-supported data collection system (Open Data Kit-ODK) installed on tablets.

2.5. Data Management and Statistical Analysis

SPSS v. 26 (IBM® Corp., Armonk, NY, USA) facilitated the analysis of quantitative data. Descriptive statistics predominated the analysis, which included the computation of frequencies and percentages of participants' characteristics summarized in tables, charts, and figures. Data to assess the level of TB-related stigma were collected at the 5 levels on the agreement-Likert scale (strongly disagree, disagree, no opinion, agree, and strongly agree). The computation of the mean, standard error, and level of TB-related stigma was done based on the 5 levels of agreement. However, the level of agreement for each statement was presented in 3 levels of agreement (agree, no opinion, and disagree) after combining strongly disagree and disagree to mean disagree and collapsing agree and strongly agree into agree.

The association between participants' characteristics and

experience of TB-related stigma was established using a Chi-square (χ^2) test statistic. A p-value of less than 5% was considered statistically significant. For qualitative data, analysis was performed after transcribing the interview verbatim and translating the transcripts into the English language in MS Word. Transcripts were read thoroughly to get familiar with the contents, subsequently, coding was manually executed to establish emerging codes with the subsequent formation of topics/themes. The topics and themes generated were then presented with associated narratives and distinctive ones that best describe the topics selected.

2.6. Ethical Consideration

The study was approved by the National Health Research Ethics Committee (NatHREC), and the Zanzibar Health Research Ethical Committee (ZAHREC) with reference certificate numbers NIMR/HQ/R.8a/Vol. IX/3668, and ZAHREC/03/OCT/2021/25, respectively. Other permissions were accordingly sought from the respective regions, districts, and healthcare facility authorities. The interviews were conducted in areas that ensured privacy with consent for participation obtained ahead of the scheduled interviews.

3. Results

3.1. Socio-Demographic Characteristics of Participants

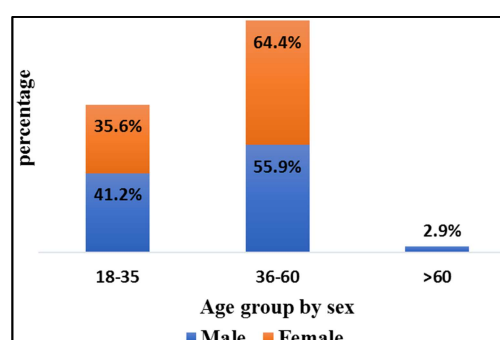
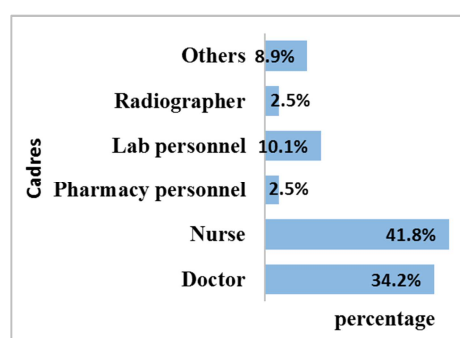
Participants' characteristics are as presented in Table 2. In all, 79 HCWs took part in this study, 21 (26.58%) of whom came from the Njombe region. About three-quarters 59 (74.68%) of the participants were married. Most of them, 64 (81%) had at least college or university education. Two-thirds of the participants, 48 (60.76%), were aged between 36 and 60 years. There were more female, 45 (57%), than male, 34 (43%), participants (Figure 1). The main cadres of the recruited HCW were Nurses: 33 (41.77%), Doctors: 27 (34.18%), and Laboratory personnel: 8 (10.13%) (Figure 2).

Table 2. Demographic characteristics of the participants.

Demographic characteristic	Category	Participants n (%)
N=79		
Region	Kilimanjaro	14 (17.72)
	Mwanza	9 (11.39)
	Njombe	21 (26.58)
	Pwani	18 (22.78)
	Unguja Kaskazini	17 (21.52)
Age group	18-35	30 (37.97)
	36-60	48 (60.76)
	>60	1 (1.27)
Gender	Male	34 (43.04)
	Female	45 (56.96)
	Single	14 (17.72)
Marital Status	Married	59 (74.68)
	Cohabit	1 (1.27)
	Separated	2 (2.53)
	Widow/Widower	3 (3.80)
	Primary education	2 (2.53)
Level of education	Secondary education	13 (16.46)
	College Education	50 (63.29)
	University education	14 (17.72)

Table 3. Dimensions of anticipated stigma in healthcare settings: level of support for each a statement that refers to living with TB, % (N = 79).

Statement	Agree	No opinion	Disagree
Some healthcare workers are nervous about treating TB patients	39 (49.37)	-	40 (50.63)
Some healthcare workers feel pity for TB patients	71 (89.87)	1 (1.27)	7 (8.86)
Some healthcare workers don't like helping TB patients	26 (32.91)	1 (1.27)	52 (65.82)
Some healthcare workers stay away from TB patients	38 (48.1)	-	51 (51.9)
Some healthcare workers think developing TB is the person's fault	14 (17.72)	2 (2.53)	63 (79.75)
Some healthcare workers feel angry toward TB patients	20 (25.32)	5 (6.33)	54 (68.35)
Some healthcare workers think it would be best for TB patients to be isolated during the intensive phase of treatment	43 (54.43)	2 (2.53)	34 (43.04)
Some healthcare workers feel TB patients are dangerous	50 (63.29)	-	29 (36.71)
Some healthcare workers think taking TB treatment should be forced if necessary	70 (88.61)	1 (1.27)	8 (10.13)

**Figure 1.** Distribution of HCWs by age group and sex (N = 79).**Figure 2.** Distribution of HCWs by cadres (N = 79).

3.2. Level of TB-Related Stigma Among Healthcare Workers

Anticipated TB-related stigma in healthcare settings was measured using a set of nine statements describing the attitudes to and feelings of healthcare providers about TB patients. The mean \pm SD and level of the TB-related stigma score were 18.54 ± 4.75 , and 52.57%, respectively. In general, HCWs believed that there was a prevailing stigma related to TB among medical staff. About half of them (49.37%) reported that they were avoiding treating TB patients; about a third (32.91%) did not like helping TB patients; two-thirds (63.29%) regarded TB patients as dangerous, and half of them (48.1%) were keeping a distance from TB patients. HCWs were inclined to show more pity than anger towards TB patients, as recorded by 89.87% and 25.32%, respectively. About one-fifth of the HCWs (17.72%) treat developing TB as the person's fault. More than half of the HCWs (54.43%) agreed that TB patients should be

isolated during the intensive phase of their treatment, and the vast majority (88.61%) concurring that TB treatment should be forced (Table 3).

3.3. Experiences of TB-Related Stigma Among Healthcare Workers

One-fifth of the recruited HCWs, 17 (21.52%) reported being stigmatized because their work involves interacting with PWTB. Of these participants, 11 (55%) reported being stigmatized at hospitals or clinics where they work; 8 (40%) in their communities, and one (5%) at home. When the respondents were further asked to indicate whether they had ever seen or heard of their fellow HCWs being stigmatized because their work involved interacting with people with TB, 7 (8.86%) were affirmative with 5 (71.43%) and 2 (28.57%) registering such experiences in hospital and community settings, respectively (Table 4).

Table 4. Experiences of TB-related stigma among healthcare workers.

Question	Statistics	
Have you ever felt you were stigmatized because your work involves interacting with people with or who had TB?	Yes n (%)	No n (%)
	17 (21.52)	62 (78.48)
In which setting(s) did you experience stigmatization? n* = 20	Yes n (%)	
	Hospitals/clinics where you work	11 (55)
	A community where you live	8 (40)
	Family/relatives	1 (5)
Have you seen or heard a member of your fellow HCWs being stigmatized because their work involves interacting with people with or who have had TB?	Yes n (%)	No n (%)
	7 (8.86)	72 (91.14)
In which setting(s) were they stigmatized? n* = 7	Yes n (%)	
	Hospitals or clinics where they work	5 (71.43)
	A community where they live	2 (28.57)
	Their family or relatives	-

n* represents the number of response frequencies in the specific question.

3.4. Factors Associated with Experienced TB-Related Stigma Among Healthcare Workers

Due to the small sample size, none of the factors were statistically significant in predicting TB-related stigma

among HCWs. However, the pattern shows that participants from Njombe experienced TB-related stigma more than their counterparts from other regions. Moreover, Female HCWs were more stigmatized than their male counterparts. HCWs

aged 36 to 60 years also encountered higher TB-related stigma than those from other age groups. Furthermore, nurses encountered more TB-related stigma than medical doctors (Table 5).

Table 5. Factors associated with experiencing TB-related stigma among healthcare workers.

Factors N= 79	Category	Sample size (N)	Experienced TB-related stigma n (%)	P- value
Region	Kilimanjaro	14	3 (21.4)	0.3790
	Mwanza	9	2 (22.2)	
	Njombe	21	7 (33.3)	
	Pwani	18	4 (22.2)	
	Unguja kaskazini	17	1 (5.9)	
Gender	Male	34	4 (11.8)	0.0667
	Female	45	13 (28.9)	
Age	18-35	30	6 (20)	0.8308
	36-60	48	11 (22.9)	
	>60	1	0	
Education	Primary education	2	0	0.4549
	Secondary education	13	1 (7.7)	
	College Education	50	13 (26)	
	University education	14	3 (21.5)	
	Single	14	1 (7.1)	
Marital Status	Married	59	15 (25.4)	0.1226
	Cohabit	1	1 (100)	
	Separated	2	0	
	Widow/widower	3	0	
HCWs cadre	Doctor	27	6 (22.2)	0.8115
	Nurse	33	8 (24.2)	
	Pharmacy personnel	2	1 (50)	
	Lab personnel	8	1 (12.5)	
	Radiographer	2	0	
	Others	7	1 (14.3)	

3.5. Manifestations of TB-Related Stigma Among Healthcare Workers

When HCWs who experienced TB-related stigma were asked to describe how it manifested itself to them, they revealed that the most common manifestations were isolation, avoidance, and underappreciation. It emerged that some HCWs were isolated at work by their colleagues, and some of them were isolated in the community. In some cases, HCWs who provide TB services were shunned, and people were generally afraid to be around them. Also, working in a TB clinic was seen as punishment. These manifestations of TB-related stigma were mainly motivated by fear of contracting TB, lack of knowledge about TB infection, negative attitudes, and beliefs, as described in the following excerpts:

“Here at the health facility, some of my fellow nurses are afraid to be near me, as they think I will infect them because I work with TB patients” (HCW, female, 37 years).

“Community members were isolating me; they told me to stay away from them because I work in the TB ward, thinking that I was probably infected with TB as well but had not yet begun to show symptoms.” (HCW, female, 32 years).

“Some HCWs isolate me because I stay with TB patients, especially those with resistant TB, and... sometimes even when I get a normal cough, my co-workers tend to avoid me” (HCW, male, 58 years).

“Some community members had been afraid to be near me, fearing that I may infect them simply because I take care of TB patients” (HCW, female, 45 years).

“...for the first time when I was assigned to work at a TB clinic, some HCWs approached me and told me that it was like a punishment and asked me to refuse since I could be infected with TB ...” (HCW, female, 47 years).

4. Discussion

TB-related stigma is a significant barrier to eventual elimination of TB because it makes it increasingly difficult to access quality, patient-centered care, and equitable TB services. Overall, this study highlights the dimensions, experiences, and manifestations of TB-related stigma among HCWs in Tanzania.

The present study has reported a 53% level of perceived TB-related stigma among HCWs. To the best of our knowledge, there are only a few published studies that have quantified the level of TB-related stigma among HCWs. The estimated level of perceived TB-related stigma in the present study is relatively like the results from Ghana-West Africa (57%) [14] and lower than the finding from Ukraine, Eastern Europe (63%) [15]. These variations may be attributed to differences in participant characteristics and sample size, and methodological approach, however, all the studies used the same TB stigma measurement scale (i.e., Corrigan's nine domain Attribution Questionnaire (AQ-9), which is

recommended by TB stigma measurement guidance developed by the STOP TB Partnership [13]. Nevertheless, other studies have qualitatively documented evidence of TB-related stigma in healthcare settings [16–18].

In the current study, the perceived TB-related stigma was characterized by negative attitudes, stereotyping, and stigmatizing actions toward TB patients. Doctors tended to have more prejudices about TB patients than nurses did. For instance, more than half of the HCWs interviewed treated TB as a deadly disease; about half felt anxious when treating TB patients and preferred to avoid them; one-third did not like aiding TB patients; and the majority preferred that TB treatment be forced. Similar findings have been reported elsewhere [16, 19], where HCWs displayed stigmatizing attitudes and behaviors when interacting with TB patients, such that they shunned, maltreated, blamed, and advocated the segregation of TB patients at home and in hospitals. Seeing trained healthcare workers behaving in this manner is unimaginable and paradoxical; however, it has been described in the field of mental illness, a disease that also carries a heavy stigma, that stereotype-based negative attitudes and prejudices towards mental illness develop early in life, originating as they do from cultural, historical, and media depictions [20, 21]. For example, the more you become familiar with people who have been or are mentally ill, the more negatively you become against them [12]. Applied to the TB-related stigma, we can deduce that HCWs also developed these stereotypical attitudes about TB before or earlier in their career lives, given their extensive contact with people with TB diseases in their line of work. In the present study, we could not ascertain how these stereotypes and negative attitudes of the HCWs affected the delivery of TB services. Nevertheless, other studies have reported stigmatizing attitudes of medical staff toward TB patients associated with delays in seeking care at health facilities, poor treatment adherence, and unfavorable treatment outcomes [5–8].

In addition, our findings also show that HCWs do not only harbor stigmatizing attitudes themselves but they also were stigmatized and bore the burden of TB-related stigma. Almost one in every 20 HCWs (21.5%) reported having been stigmatized just because they worked with people with or who had TB. A relatively high TB stigma experience among HCWs has been reported in other studies in Ghana, and Ukraine by 32.9%, and 30%, respectively [14, 15]. This finding presents the other dimension of TB-related stigma, such that the stain of TB stigma can extend to others (i.e., HCWs) merely by virtue of their association with stigmatized individuals (i.e., TB patients). This phenomenon is already described by Goffman as “courtesy stigma” or “stigma by association” [22], whereby those who are associated with TB patients are also judged by the same stigmatizing stereotypes. Besides, our study could not ascertain whether HCWs who reported being stigmatized did so exclusively because of their association with TB patients. It is possible that HCWs, who were stigmatized, also had other stigmatizing attributes, such as living with HIV, having a mental illness, being substance

users, or, at the time of data collection, also having TB [23, 24]. TB in healthcare settings is common in Sub-Saharan countries, including Tanzania, and constitutes an occupational disease [25]. Nevertheless, TB is labeled as a marker for HIV [26], and both diseases both carry heavy social stigma, either singly or together.

Furthermore, isolation, avoidance, and discrimination actions were the most reported manifestations of TB-related stigma HCWs experienced and were common at the workplace and in the community. They were mostly perpetuated by their colleagues (55%) and community members (40%), and mainly driven by the fear of contracting TB. Similar manifestations are common in the pathway of stigma and are mostly orchestrated by exaggerated fear of TB infection [16, 27]. In other studies, because of an unrealistic fear of contracting TB, TB patients were not allowed to attend some community events (e.g., wedding and burial services), were not allowed to eat or share eating utensils with others and refused to allow their children to play with other kids [28, 29]. In clinical settings, overuse of masks and gloves when attending to TB patients has also emerged as a stigmatizing action stemming from fear of TB infection [25]. These results suggest that TB responses should address the unrealistic fear of TB infection by challenging misconceptions and myths surrounding TB infection and its transmission. Evidentially, working in a TB clinic has emerged as a form of punishment even among some medical practitioners as the findings of this study illustrates. Similar findings have been reported in Ghana [16], where healthcare providers avoid and refuse to work or train as TB nurses or doctors. Nevertheless, HCWs who are isolated and discriminated against because they treat TB patients can become frustrated, lose confidence, become depressed and, subsequently, perform poorly at the workplace, which affects the overall quality of care and support for TB patients.

On other hand, our study has some limitations. To begin with, the small sample size may have under or overestimated the level of TB-related stigma, and may explain the lack of statistical associations of the factors linked to the experiencing TB-related stigma. In addition, the sample may also limit the generalizability of our findings. Still, we believe that this study provides evidence and a pattern of how TB stigma unfolds among HCWs to inform TB stigma reduction interventions. Second, we could not evaluate how the perceived and experienced TB-related stigma affected the practices of HCWs and the associated impacts on TB care and treatment outcomes. Given these deficiencies, future studies need to address the gaps we have identified for more robust data and generalization purposes.

5. Conclusion

This study was inclined to assess the dimension, experience, and manifestations of TB-related stigma among HCWs in Tanzania. Our findings have demonstrated that in

healthcare settings, HCWs do not only have a high level of perceived TB-related stigma but are also stigmatized because of attending to TB patients. These dynamics are mainly driven by the fear of contracting TB. As such, urgent efforts are necessary to reduce TB-related stigma by improving TB knowledge and awareness among target populations. Future studies should also look on a large scale into how TB-related stigma among HCWs affects efforts aimed to prevent and control TB in our settings.

Author Contributions

D. M., E. P. K., and L. M. designed the study, collected data, analyzed it, and wrote the manuscript. R. K., E. M., H. K., G. P. M., G. N. M., O. L., and J. N. M. collected data, analyzed it, and helped to draft the manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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Consent for Publication

All authors read the manuscript and approved it for publication.

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