



Research article

"I just became like a log of wood ... I was paralyzed all over my body": women's lived experiences of tonic immobility following rape

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ABSTRACT

Tonic immobility is considered the last involuntary self-protecting act/mechanism experienced by victims of rape when they are under attack. It is associated with trauma related mental health risks post-rape. Despite this, tonic immobility has not received priority as an area of research on Nigerian female victims of rape. As a result, little has been known about this phenomenon by nurses and other professionals who are involved in the care and management of rape survivors in Nigeria. The limited knowledge about tonic immobility as a phenomenon might have resulted in mismanagement and secondary victimization of rape victims experiencing manifestations suggestive of tonic immobility during or after rape. This study was a qualitative narrative inquiry that explored, analysed, and interpreted the lived experiences suggestive of tonic immobility, and the meaning attached to such experiences by victims. A sample of fourteen Nigerian women who self-identified as rape victims was utilized. Individual semi-structured, in-depth interviews were conducted to generate data. Thematic data analysis revealed four overarching themes: namely (i) Tonic immobility as an Altered Physical State, (ii) Tonic Immobility as Mental Paralysis, (iii) Painful Loss of Self-defence, and (iv) Constant Self-blame. The findings provided an insight into the traumatic experience of raped women and the psychological implication of tonic immobility as extreme defence mechanism. This study will prove invaluable to nurses and other professionals/stakeholders involved in the care and management of rape victims; to help them develop and use appropriate strategies for management and prevention of secondary victimisation.

1. Introduction

Globally, more than 250,000 rape cases are recorded annually (Aloa, 2018; Kozłowska et al., 2015); thus highlighting rape as a public health concern for many countries due to its devastating immediate and long-term health consequences on its survivors (Daru et al., 2011; Levack and Paterson, 2016; Möller et al., 2017). In Nigeria, there is limited national information and verifiable data on rape cases because only two out of 40 cases of rape are reported to the police (Akhiwu et al., 2013; Akinlusi et al., 2014; Bugaje et al., 2012; Ezechi et al., 2016; Kullima et al., 2010). Available data from different states of the country of over 200 million inhabitants show a decline in the prevalence of rape, ranging from a reduction of 15% in Ibadan, Oyo State (Ajuwon, 2005), 13.8% in Maiduguri, Borno State (Kullima et al., 2010), and 0.8% in Lagos, Lagos State (Akinlusi et al., 2014). However, despite the declining states' data on rape, about 90% of reported sexual abuse cases in Nigeria are of rape and violence against women (Tade and Udechukwu, 2020).

Tonic immobility (TI) is one of the immediate consequences of rape experienced by most survivors of the abuse, and other traumatic events (Boscarino, 2004; Duma, 2016a, 2016b; Machisa et al., 2017; Moller et al., 2017; TeBockhorst et al., 2015). It is prevalent amongst female victims, and is often associated with post-traumatic stress disorder (Adeola, 2009; Kuiling et al., 2019; Norte et al., 2019). Moller et al. (2017), reported that the percentage of raped women who experienced TI rose to 70% from the 37% by Galliano et al. (1993) and 52% reported by Heidt et al. (2005). TI has been described as a behavioural response, "...to an inescapable threat, or a strategy of last resort, when active defence responses have failed" (Kozłowska et al., 2015). It is experienced physically and psychologically as a reversible catatonic-like state, accompanied by an inability to vocalise, or consciously control one's muscles and movement. TI is often associated with feelings of detachment from self, relative unresponsiveness to external stimuli, feelings of shame, inescapability, hopelessness, fear, coldness, numbness, uncontrollable tremors, intermittent eye closure (Kozłowska et al., 2015;

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Möller et al., 2017; TeBockhorst et al., 2015; Wise, 2019), and changes in cardiac rates (Norte et al., 2019).

The phenomenon of TI among humans is an emerging area of research, having been studied and published in the last decade outside sub-Saharan Africa (Coxell and King, 2010; Kozłowska et al., 2015; Möller et al., 2017). There is little or no research reported, however, on the lived experiences of TI among rape survivors, especially in Nigeria (Akinlusi et al., 2014; Sodipo et al., 2018); although, it has been studied, among birds in Nigeria (Akpa et al., 2007; Egbuniwe et al., 2016; Sinkalu et al., 2016). This dearth of relevant literature on TI among human victims of rape in Nigeria has resulted in its non-inclusion as critical medico-legal management and care of rape survivors, related policies, management protocols (Moller et al., 2017) and research. The implication of this is that the limited knowledge about manifestations suggestive of the phenomenon of TI experienced by rape victims could result in mismanagement and secondary victimisation. This study was therefore, an attempt to explore, analyse, and interpret the lived experiences of TI and the meanings attached to such experiences by Nigerian female participants of the study who self-identified as rape survivors. It is hoped that a better understanding of this TI phenomenon would enable nurses and other professionals/stakeholders involved in the care and management of rape survivors, to develop and use appropriate strategies in managing and preventing secondary victimisation of rape survivors.

1.1. Operational definition of terms

The following terms are applied for the purpose of this present study:

1.1.1. Tonic immobility

An experience of any one of the following during a rape is suggestive of TI. These include: feelings of detachment from self, relative unresponsiveness to external stimuli, feelings of shame, self blame, inescapability, hopelessness, fear, coldness, numbness, uncontrollable tremors, dying or death, and intermittent eye closure.

1.1.2. Self-identified

A victim of rape who by herself reported to a post rape care centre for care and management.

1.1.3. Chronic mental illness

Someone who previously manifested abnormal behaviour and was medically confirmed as such and was receiving antipsychotic treatment at the time of conduct of this present study.

1.1.4. Rape

Penile penetration of the vagina without an adult woman's consent.

2. Materials and methods

2.1. Research setting and design

Three government health care facilities and one registered non-profit/non-governmental organisation in Lagos State, Nigeria which provided post rape care and support services for rape survivors were purposefully selected for this study. Post-rape care services offered by these research sites included post-rape counselling, HIV screening, collaboration with the gender units of the Nigeria Police Force, facilitation of survivors' support group meetings and referrals to other service providers, when necessary. According to the health workers of the three government health facilities, on an average, each facility received seven adult rape survivors per month, while the non-profit/non-governmental organisation recorded 30 adult rape survivors including child sexual abuse survivors per month. Services the non-profit/non-governmental organisation provided at the time of the study included free medical care and support through the rape crisis, psychosocial counselling,

forensic investigation, access to shelters, vocational skills training, provision of legal aid, case management, referral as necessary, training of law enforcement officers on sexual violence and abuse and the operation of a 24-hour helpline. Permission to access and utilise these facilities for recruitment and data collection purposes was granted by their coordinating bodies.

This qualitative narrative inquiry explored, analysed, and interpreted the lived experiences suggestive of tonic immobility (TI) and the different meanings attached to the experiences by the survivors. The study, used the narrative inquiry approach which provided the researchers with the necessary understanding and interpretation of the complex phenomenon experienced by the participants (Maley, 2020; Yang, 2011).

2.2. Sampling and sample size

Fourteen women who self-identified as rape survivors were purposefully sampled and recruited into the study. According to (Boddy, 2016; Dworkin, 2012; Vasileiou et al., 2018); a small sample is considered adequate to provide in-depth understanding of a phenomenon in focus, for instance, TI; it is acceptable in qualitative studies when the focus of the study is to have a deeper understanding of a complex phenomenon from participants' perspectives rather than to generalise findings. The present study, involved a wealth of data from each participant which necessitated a smaller participant sample (Morse, 2000). For this, participants were purposefully selected because they possessed the desired lived experience related to the research topic (Elo et al., 2014).

2.3. Inclusion and exclusion criteria

To be recruited into the study, the female victims had to be at least 18 years or older and must have been raped within the previous twelve weeks prior to the study and self reported to any of the four health facilities for post rape care. They must also have experienced at least one of the following symptoms suggestive of TI during the assault: inability to control one's muscles and movement; inability to call out or scream; feeling numb; having a fast heartbeat; breathing rapidly; fearing for one's life; feeling as if a person is not the one being raped and feeling as if a person is not present at the place where the rape is happening (Maia et al., 2015; Norte et al., 2019; Volchan et al., 2017). In addition, each woman had to confirm her availability in Lagos for at least the duration of the study (up to nine months) to allow for member-checking. They also had to be medically mentally fit as confirmed by their doctors or doctors' reports to undergo in-depth interviews. The interviews were conducted in English or Pidgin languages (the two languages are commonly spoken in Lagos State) (Umana, 2018); and a participant must have access to a functioning mobile phone through which they could be contacted throughout the study. To be excluded from the study, assaulted females who were less than 18 years of age, raped over 12 weeks to the study, reported chronic mental illness either previously or after the recent rape, who were on treatment for chronic mental illness, and who were unwilling to participate in the study. For the mentally ill, exclusion was to avoid triggering their mental state from sensitive questions that could bring back their traumatic experience of rape. Previous mental health status was confirmed from participant's hospital records, and from verbalization during the pre-indepth interview session.

2.4. Recruitment of participants

Ethical clearances were received from the Biomedical Research Ethics Committees of the University of KwaZulu-Natal, Durban, South Africa, and the Lagos University Teaching Hospital, Lagos, Nigeria. Written gate keepers' permissions were obtained from the four post rape health care facilities, prior to the recruitment of the potential participants. Most of the rape cases were handled legally either by the gender units of Nigeria Police closest to where the rape took place or the police stations linked to the post rape care facilities where victims self reported.

Each facility appointed a dedicated focal person to assist the first author in the identification of eligible survivors based on the study's set criteria. The focal persons were briefed about the study, privacy/confidentiality, and about the inclusion/exclusion criteria. Thus, the focal persons sieved victims who were eligible to participate in the study. Due to the challenges of transportation in Lagos, and the time of accessing care, most participants had to make a return visit to the post rape facilities after their being recruited just for the indepth interviews. At this point, the focal persons introduced the first author to the potential participants. The researcher then explained to the potential participants the purpose of the study, privacy and confidentiality, the process of data collection, and confirmed their willingness to participate in the study. The most important part of the recruitment was confirming the experience or experiences suggestive of TI before or while the victim was being sexually abused. To achieve this, a victim affirmed of an experience of at least a symptom suggestive of TI from a list of symptoms. That one experience was considered by this study in keeping with TI, hence recruited her. In addition, the research process was re-emphasized, demographic information was collected, dates, times, and venues for the main interview were negotiated, and finalized. Where interviews were not possible on day of first meeting, follow up phone calls were made that same evening and a day before the scheduled in-depth interview to the participants in waiting to show respect and communicate her relevance to the study, to remind her of the appointment for the interview, to reaffirm the time, and venue for the pending interview. Priority was given to potential participants' preferences in terms of choice of language, date, time, and venue for the interview. Safety and privacy were also a priority.

2.5. Data collection

Data was collected through an in-depth, individual and face to face interview using an intentionally developed semi-structured interview guide. The guide was developed based on the objective and the reviewed literature for the study. It began with a pilot study with two survivors: one each from a government health care facility and the other from a non-profit/non-governmental post-rape care organisation in December 2018. The objective of the pilot study was to determine the suitability of the interview guide in terms of language and its acceptability by the participants. The same interview guide was used for both the pilot and the main studies since the questions remained the same after the pilot study, and no ethical conflict was elicited during that phase. At the end of the in-depth interviews for the pilot study, the two participants confirmed that the language was appropriate, simple, and understandable. Thus, data from the pilot study was merged with the data from the main study for data analysis. This approach had been used in a similar research (Duma et al., 2009; Mgozoli and Duma 2019). Each data collected was transcribed and analysed simultaneously within the nine months from December 2018 to August 2019. This method enabled the researcher to determine the point of saturation as new codes were no longer found to culminate into properties of another category for the lived experience being investigated. This also helped to determine the study's sample size (Duma et al., 2009; Mgozoli and Duma, 2019).

Given the intimate nature of sharing such traumatic life experiences, substantial emphasis was placed on establishing a trusting relationship to enhance the process of in-depth interview. Privacy and anonymity of participants were assured and practiced. In-depth individual, face to face interviews were conducted in the post rape facilities' counselling or consulting rooms. Experiential narratives of lived experiences suggestive of tonic immobility and the meaning participants attached to them were verbalized. The narratives were audio recorded and made up the data for analysis. Interviews conducted in English were supplemented by Pidgin English where participants showed limited vocabulary (refer Table 1) in describing deeply and clearly their lived experiences suggestive of TI. Each participant was asked a main question from the semi-structured guide. The question was "Please tell me about your rape experience from

the time you met with your assailant to the time you realised that you had been sexually assaulted". Probing questions such as: "Since then, what has been your thought/feeling when you think about the incident? Please, what were your reactions?" were asked to elicit more information about their lived experiences that were suggestive of tonic immobility and the significance they attached to those experiences. Data saturation was realised as new codes were no longer found to culminate into properties of another category for the experience in keeping with TI in the subsequent in-depth interview sessions after the fourteenth participant (Hennik et al., 2017; Mason 2010). Hence, a sample size of 14 was decided as an adequate sample in this qualitative research process. Eleven participants out of the fourteen were interviewed at the three Government post rape health care facilities, one was interviewed at the Non Governmental/non profit post rape care organization, another participant had her interview in the researcher's car, in a public car park (proximity to a participant's child's school). The last interview was conducted behind closed doors in the office of a participant. To further protect the identities of all participants, all references to their documents, including data, audio-files, transcripts, and manuscripts were coded with pseudonyms. All the fourteen interviews were conducted between the hours of 8am to 6pm on weekdays. The pre-in-depth interviews lasted about 15 min on average while the individual in-depth face to face interviews lasted for 60 min and over.

2.6. Data management and data analysis

Each audio-recorded story was transcribed verbatim, 24 h after an in-depth interview, to ensure recall of content and to begin the initial process of data analysis. The transcribed data was stored in Microsoft Word Document using pseudonyms, matched with facility initials in a password-protected parent folder. The transcribed texts were cleaned (quality reviewed against the original audio). To ensure that no data was missing or altered, the first author went over the transcribed information while listening to the recordings iteratively. We ensured that none of the participants would be linked to their narrated stories. Only the researchers were privy to the data of this study. Notebooks used for jottings during the data collection and analysis were kept in each participant's file and placed in a cabinet under lock and key. For ethical and legal reasons, all project data were kept secured with the researcher's supervisor as specified by the University of KwaZulu-Natal's research policy.

Braun and Clarke (2006)'s Six Steps of Thematic Analysis was used to analyse the data. Firstly, the transcribed data from each case and across cases were read repeatedly. Initial ideas were noted, to get familiar with the transcribed data. Secondly, relevant features of the data were coded in a systematic fashion across the entire data set, collating relevant data into each code, and using different colours to highlight the different codes. A thematic map was developed in this fashion (supplementary material I & II). Thirdly, similar codes were collated, refined, and integrated into potential themes and subthemes relevant to the research question. This re-iterative process was followed throughout data interpretation. Fourthly, the themes were reviewed and refined to ensure trustworthiness, until a clear thematic map of the analysed data with links and relationships among themes and subthemes emerged. Constant referral to the original texts in the transcripts was made whenever necessary. Fifthly, vivid, compelling extracts from original transcripts were selected as examples to support emerging themes in relation to the research question and reviewed literature; themes not obviously expressed or well-matched across the narratives were rejected. At the end of the thematic analysis, four overarching themes were identified. Finally, a report from the thematic analysis was produced.

2.7. Trustworthiness

Trustworthiness including credibility, transferability, dependability, and confirmability certified the rigor of this study (Guba and Lincoln, 1989). The strategies of rigor applied to this study were also modelled after Birt et al. (2016), Korstjens and Moser (2018); and Maley (2020). To

Table 1. Socio-demographic profiles of participants.

Alias	Age	Education	Religion	Marital Status	State
Farida	18	2	Muslim	Single	Lagos
Ifeoma	23	2	Christian	Single	Lagos
Anita	27	2	Christian	Single	Edo
Angela	19	2	Christian	Single	Enugu
Lola	28	3	Christian	Single	Lagos
Nonye	29	2	Christian	Single	Anambra
Bisi	35	3	Muslim	Married	Lagos
Rejoice	31	3	Christian	Single	Benue
Lovette	26	2	Christian	Single	Edo
Preye	27	2	Christian	Single	Edo
Halima	30	3	Christian	Single	Lagos
Moji	26	2	Muslim	Single	Ogun
Bisola	54	0	Muslim	Married	Lagos
Titi	30	3	Muslim	Single	Lagos

Key- Edu: 0 = No formal school, 2 = Secondary, 3 = Post -Secondary.

establish credibility, we selected an appropriate method of data collection regarding the phenomenon of interest. We utilised the narrative inquiry approach for data analysis and generated our findings thematically. On spot member-checking was conducted with the participants immediately after each in-depth interview to confirm that their words matched what they intended to say (Shenton, 2004). In addition, post data analysis, five out of the fourteen participants were available for member-checking, and they agreed that the interpretation of transcribed texts, and their meanings were synchronised with their narrations. The study ensured a thick-rich description of its processes, so that a reader would judge transferability: the ability of the findings to be applied to a similar setting. To guarantee dependability and confirmability, notes were made on the judgments during the research analysis processes. In line with those, there was constant communications between the two authors, who also shared their reflective thoughts, while the use of excerpts from participants' narratives authenticated the study.

2.8. Ethical approval

Ethical clearance was granted by the Biomedical Research Ethics Committees of the University of KwaZulu-Natal (UKZN), Durban, South Africa (BE 402/18), and the Lagos University Teaching Hospital (AD/DCST/HERC/APP/2448). The Gate keepers consent were obtained from the following: the Lagos State Primary Health Care Board (LS/PHCB/MS/1128/VOLIV/073), Lagos State Health Service Commission (LSHSC/DNS/RESEARCH/VOL.III/41), the University of Lagos (PCM/C/151), and the Domestic and Sexual Violence and Rape Response Team. In addition, a verbal consent was given by a posttrape care non-profit/non-governmental organisation based in Lagos.

3. Findings

3.1. Present research themes

The study identified four overarching themes as presented below. The first two themes described lived experiences suggestive of TI by the victims before rape; while the last two themes described the meaning attached by the participants to those manifestations (Refer Supplementary material I & II).

3.1.1. Tonic immobility as an altered physical state

This overarching theme of the experiences suggestive of tonic immobility as an altered physical state emerged from the participants' narratives in which they reported uncontrollable physiological responses

as they were sexually abused. Such experiences included: inability to scream, move, fast heartbeat that made them feel as though they would die, they felt pain, legs felt heavy and numb, they were in shock. The theme depicted how the physical manifestations during the traumatic experiences seemed in tune with tonic immobility. These manifestations were exemplified in the extracts below:

"I could feel my heart beating very fast in my chest; like it was racing too fast and that if it stopped, I would die". (Ifeoma, Aged 23).

"My heart was beating so fast like if it were going to stop, and I would just die there and then". (Farida, Aged 18).

"I was panting, my heartbeat was racing very fast" (Rejoice, Aged 31).

"I thought I was screaming, but I was not audible; I think I was in shock". (Anita, Aged 27).

"I could not process what he was saying or doing to me; I could neither shout nor scream for help; I just lay there". (Bisola, Aged 54).

"I could not scream or do any other thing, but I could feel only tears coming down my face". (Farida, Aged 18).

"I wanted to stand up and run, but my legs were numb and heavy, so I just lay there for a while, unable to do anything". (Ifeoma, Aged 23).

3.1.2. Tonic immobility as mental paralysis

This main theme tonic immobility as mental paralysis was generated from the collected data in which participants narrated their lived experiences in keeping with tonic immobility and manifested as mental paralysis, hence, their mental thought processes were paralysed. The participants could not do what they wanted to do to escape their ordeal or to fight for their lives. This was demonstrated in the below excerpts:

"I just became like a log of wood, it felt like I was paralyzed all over my body. I could not even fight for my life, though I could have". (Bisi, Aged 35).

"I just complied with what they asked me to do...I just followed them..." (Anita, Aged 22).

"I could not think; I was lying there powerless; I became numb. I could not even lift my hands to remove my clothes as they demanded me to do so". (Bisola, Aged 54).

"I just went blank; ..., I was numb; I was not even thinking about anything anymore; my brain was just blank as if my mind had gone to heaven or hell, wherever; and left me lying there". (Ifeoma, Aged 23).

"I was stunned; I was paralysed with fear on seeing the gun and I could not even open my mouth. I could not utter a word; I simply followed his instructions without even knowing what I was doing". (Bisi, Aged 35).

"It was like I could feel my strength suddenly leaving my body; I could not move; I lay on the bed motionless, helpless, and death-like". (Moji, Aged 26).

"...even as they were raping me, one after the other, I felt nothing. It did not feel like I was having sex or anything. I was like dead". (Bisola, Aged 54).

"I was shocked and confused, I was very afraid, I did not know what to do but obeyed them. I do not know if they all raped me". (Preye, Aged 27).

"I was beside myself. It did not feel as if it was my body that was undergoing such a thing. He asked me to lick his prick. But I was not there, my mind had gone to heaven". (Nonye, Aged 29).

3.1.3. Painful loss of self-defence

This theme painful loss of self-defence emerged from the meaning that the participants attached to their experiences suggestive of TI. They expressed that those manifestations rendered them so powerless that they could not defend or protect themselves from the sexual violence they experienced. The meaning they attached to the lived experiences was that of pain and devastation. The following were their excerpts:

"It felt bad because it meant that I could not even defend myself. I could not do anything to fight him; I just lay there dead alive". (Bisi, Aged 35).

"I was unable to fight back; I was powerless. It felt like I lost all my strength to do something and protect myself". (Moji, Aged 26).

"I was stuck there, being unable to run away; being unable to do anything to protect myself. The numbness and powerlessness were painful". (Lola, Aged 28).

"The paralysis and fear of seeing the gun; the inability to run away from him, made me lose hope. It felt like I was dead already". (Bisi, Aged 35).

"I knew that they were molesting me, I just could not do anything..., I felt I could not prevent the attack". (Lovette, Aged 26).

"...I do not know, but I could not resist him. It felt like I was dreaming, I believed that he used something on me to make me not fight back". (Angela, Aged 19).

3.1.4. Constant self-blame associated with failure to defend self during rape

Participants expressed experiences from which we deduced the overarching theme of constant self-blame associated with failure to defend self during rape as an indication of traumatic TI. The feeling of constant self-blame was because participants believed that they had let themselves down for not being self-defensive. They interpreted their inability to defend themselves as a shameful act. Quotations from their stories were:

"I still blame myself. I still feel that there was something I should have done better to stop him from raping me; but I just lay there motionless, like I was dead or something". (Tititi, Aged 30)

"I feel ashamed and unworthy. ... I feel that my self-worth is gone because I could not do anything to defend myself. It is like I gave him power to do whatever he wanted while I lay there doing nothing". (Bisi, Aged 35).

"I am ashamed of myself. I just lay there; I did nothing. How can I now express myself in public? That is why I have become withdrawn and keep to myself". (Ifeoma, Aged 23).

"The experience brought me down so low emotionally, I felt deflated, less confident, and ashamed. It meant for me that God had left me, and I am always reminded of that". (Halima, Aged 30)

4. Discussion

This study explored the Nigerian female rape survivors' lived experiences that were allusive of tonic immobility (TI) and the meaning they attached to those experiences. Four themes were revealed from the study's exploration. The first two themes demonstrated responses by participants while being sexually assaulted; while the last two themes explained the meaning attached to the expressions suggestive of TI by the participants. The narratives from the participants confirmed that, to the best of the researchers knowledge, despite little or no documented data on TI in Nigeria, manifestations suggestive of TI from rape was a reality. The meanings victims attached to the suggestive TI experiences should be taken cognisance of when caring for victims of rape both immediately following the rape and during follow-up care.

Even though, the present findings have similarities with recent published studies related to TI among raped women in some parts of the world (Möller et al., 2017; TeBockhorst et al., 2015), there are no known recent TI findings in Nigeria to the best of the author's knowledge for collaboration. Nevertheless, there were reported cases of rape in Nigeria from which literature confirmed that TI occurred (Geidam et al., 2010; Kullima et al., 2010). For instance, available data from Lagos, Lagos State, showed a rape prevalence of 0.8% (Akinlusi et al., 2014), and in Nigeria, about 90% of sexual assault cases were of rape (Tade and Udechukwu, 2020). Even though available reports has shown that Lagos has a low prevalence of rape, in Nigeria as a whole, rape is high. Meanwhile evidence has shown that, when there is a high percentage of rape, there will be a corresponding high occurrence of TI (Moller et al., 2017). Although there is a dearth of African studies on TI, there is a growing research in some other countries that, address both female and male rape survivors (Duma, 2016a, 2016b; Mgozeli and Duma, 2020b; Sebaeng et al., 2016; TeBockhorst et al., 2015) whose findings are similar to those of the present study.

4.1. Tonic immobility as an altered physical state

Manifestations in keeping with tonic immobility as an altered physical state, presents changes in heartbeats, including tachycardia or bradycardia, inability to scream, and other uncontrollable body movements. These symptoms are in response to fear during traumatic events like rape (Hagenaars et al., 2014; Kozłowska et al., 2015; Volchan et al., 2017). Participants in this study expressed similar manifestations. Cardiac heart rates have generated controversies according to literature. Scientists allude that the most common response to fear is the fight or flee phenomena, which stimulates an abnormally rapid heart rate in victims (Giannico et al., 2014; Norte et al., 2019; Volchan et al., 2017), but TI conversely, is a substitute protective attitude that causes cardiac changes opposite to the fight or flee situation. This means, there is no abnormally rapid heart rate in TI. Others have doubted the presence of any changes in heart rate as traumatic response during TI. They assert that the features of TI are either not clear, often inconsistent or difficult to differentiate from those of 'freezing' during the state of shock (Hagenaars et al., 2014; Lloyd et al., 2019). Overall, nearly half of the participants narrated the experience of TI as an altered physical state. Notably, regarding changes in heart rate, despite the controversies in literatures, a quarter of participants in this study affirmed experiencing rapid heart rates. For instance, one of them stated "my heart was beating very fast in my chest; like it was racing too fast and that if it stopped, I would die" (Ifeoma, Aged 23). This seems to agree with the school of thought of the rapid heart rate during TI experience from a traumatic situation. In the same line of discussion, the inability to scream or the loss of voice as a manifestation suggestive of TI during rape is reported by other studies (Duma, 2016a; Littleton et al., 2020; Mgozeli and Duma, 2020b; Norte et al., 2019; TeBockhorst et al., 2015). This was also experienced and described by a quarter of Nigerian women who participated in this study. These unresponsive manifestations were the hallmark of experiences that the participants in the study reported, which were allusive to TI, which is a strategy of last resort,

indicating that the victim at this point can neither run nor fight back (Kozłowska et al., 2015). This is a period of resignation, of inactivity which probably explains why some survivors may not experience a rapid heart rate, as a resting period may not excite the heart into a fast mode. The implication of this inactive and timid behavior is a propensity for the development of psychopathology (Hagenaars and Hagenaars, 2020).

The inability to vocalise is another altered physical state that is experienced by traumatic victims who can not respond defensively to an extreme threat. This reactions is biological defence mechanism. It can throw a victim into physical paralyses by fear during an unsolicited advance or attack. According to Ford et al. (2015), the inability to scream or the loss of voice is a form of shielding the self from stress reactions following traumatic experiences. The inability to call out or scream during the event may not be because of tonic immobility, but may be due to some perceived threats from the assailant. Thus, according to Zoellner (2008), a TI-related response that renders a victim unable to perform a motoric activity is clearly different from contextual factors that prevent motoric activity, though physically possible. Practically, this extreme traumatic phase has been used before and could still be capitalized upon by defence lawyers; amplified to undermine and dismiss the victims' claim of having been raped during court trials (Haskell and Randall, 2019). Expert witnesses who have knowledge about TI should use this opportunity to educate the courts of law about it and help them understand the manifestations of TI, and TI's devastating outcomes for the victims. However, it should be noted that this study did not set out to define or identify TI, rather it explored and described the lived experience of reactions similar to TI as narrated by female victim of rape in Nigeria.

4.2. Tonic immobility as mental paralysis

The experiences of raped women hinting TI as mental paralysis is another theme derived from the stories of half of the participants in this study and which is consistently reported in both male and female rape victims researchers (Duma, 2016a; Littleton et al., 2020; Lloyd et al., 2019; Mgozeli and Duma, 2020a; Moller et al., 2017). Mental paralysis as a manifestation linked to TI, is thought to be an advantage and a protective mechanism for the victims of rape because the rapist may assume that an immobile victim showing mental paralysis is 'dead' and thus, physical harm to the victim is reduced (Rütting et al., 2007; Van Buren and Weierich, 2015). Amplifying the experience of TI by rape victims, Ford et al. (2015) stated that mental paralysis occurred when victims felt trapped more than briefly during a rape. On the other hand, Duma (2006) reported that TI as mental paralysis can occur abruptly during the rape event and immediately after rape. In her book 'The Pain of Being a Woman', Duma (2016a) told the story of a survivor's experience of mental paralysis, the survivor explained that 'she just carried out all the orders of her attacker' with no resistance. This narrative, is like our findings, in the cases narrated by Preye, Anita, and Bisi. Experiences of mental paralysis are confirmed as neuro-physiological responses to trauma in which the victims have no control (Kozłowska et al., 2015). The lack of knowledge about mental paralysis as a feature of TI has legal implications and can be used to discredit the evidence of rape, especially in countries like Nigeria, where there is an expectation that for rape to have occurred, the victims should have shown some form of physical resistance during the time of the assault. This was recently demonstrated by the Nigerian Supreme Court, the highest appeal court in the country, in a case of Okoh vs Nigerian Army in 2018 (Nigerian Supreme Court., 2018). The Nigerian Supreme Court pronounced that ... "in an allegation of rape, in proving whether the prosecutrix gave her consent to the sexual intercourse with the accused, the prosecution must prove the physical resistance by the prosecutrix; or that the situation was such that she was not able to resist the physical assault on her." This is a failure to acknowledge and consider that when rape victims experience tonic immobility in the form of mental paralysis, they are unable to physically resist the assault. This can have negative legal outcomes for rape victims and this drawback needs to be

addressed by educating all legal and judicial personal who are involved in handling sexual assault cases for a commiserate judgement.

4.3. Painful loss of self-defence

The sense of a painful loss of self-defence emerged also as a theme to the meaning attached to the experiences related to tonic immobility from the analysed stories of participants. Nearly half of the participants further described being overwhelmed, unable to fight back, felt stuck and could do just nothing. These they deemed painful as they supposed the should have physically resisted but did not do so. They described how the no resistance meant to them, for instance 'I was stuck there, being unable to run away; being unable to do anything to protect myself. The numbness and powerlessness were painful'. (Lola, Aged 28). According to Zoellner (2008), this may further heighten blame of the victim, both by herself and by society. Both would conclude that she did not fight back by choice. It is this nonresponse in terms of self defense that Survivors, the society, and stakeholders most often fail to understand. Survivors wonder how they could have failed to resist the attack by their assailants when they needed to do this for themselves. However, this assumed non response is actually biological response in itself, referred to as acquiescence in the face of an inescapable situation (Zoellner, 2008). This has been reported to lead to personal extreme feeling of guilt and constant self-blame among victims of rape (Castonguay et al., 2015; Tangney and Tracy, 2012). Helping rape victims to understand that the painful loss of self-defence associated with tonic immobility is a normal self defence mechanism when fear is extreme during an attack, may help victims accept this feeling for what it is, and this understanding could reduce existing or potential depression. Zoellner (2008) cautioned that the increasing rates of TI reported studies may reflect a lack of accountability for event- and assailant-related characteristics that may 'result in false positive for TI-related experiences'. For instance, a victim may not be restrained, but maybe unable to move, not because of a motor inability, but due to the presence of a weapon or the size/power of the attacker or a stern warning from the attacker to stop any such movement. For instance, Bisi narrated that "The paralysis and fear of seeing the gun; the inability to run away from him, made me lose hope. It felt like I was dead already". (Bisi, Aged 35). The researcher concluded that this level of fine-grained analysis is needed to separate TI from non-TI-related behavioural responses.

4.4. Constant self-blame associated with failure to defend self during rape

Another meaning attached to TI related manifestation in the event of rape by participants in this study was their expression of constant self-blame associated with failure to defend self during the rape event. This was in agreement with similar reports by Balzarotti et al. (2016) and TeBockhorst et al. (2015). Research implied that self-blame is a means to justify the situational connotation of an event by transferring causal responsibility (Libow and Doty, 1979). So, in this instance, constant self-blame was the meaning construed from being raped by participants. Put differently, Gravelin et al. (2019) and Haskell and Randall (2019) explained that self-blame is a reasoning process in which individuals ascribe the occurrence of a stressful event to themselves; and this is common among victims of rape. The constant self-blame expressed by raped victims has been defined as an intense feeling of shame, humiliation, and guilt for having failed to protect self, fight the assailant, or run away when danger was sensed (Ford et al., 2015). Ford and colleagues' definition of constant self-blame above, fits the meaning that the participants in this study ascribed to the TI related manifestations hence, the origin of the theme. Tangney et al. (2007), asserted that guilt associated with TI experience was an unfavourable self-assessment indicating that a specific action should have been taken for self-defence. Unfortunately, it is one of the negative consequences of TI when experienced by human beings because, unlike animals, people can reflect and think about what they should have done (Kuiling et al., 2019).

One more perspective to constant self-blame is the feeling of guilt and assigning a spiritual interpretation to the rape incident. For instance, one of the participants interpreted her experience of self-shame and guilt to mean the departure of God from her. This finding was in consonance with a previous finding of Duma (2016a), which reported self-blame among two participants. The participants associated constant self-blame with guilt, was interpreted as God allowing their rape to take place. Labine (2015) contended with the involvement of spirituality among victims who are coping with life-changing situations in various traumatized populations.

Understanding the experience related to TI and the meaning attached to the phenomenon was important for those responsible for immediate care of victims and survivors of rape. They should be able to use their knowledge to reassure the victims and survivors that TI is a usual response to rape for some individuals. This could be used to allay the feelings of the painful loss of self-defence and constant self-blame. Knowledge and familiarity with different manifestations and features of TI should be used in expert witnessing and assisting the courts of law to understand why some victims fail to resist or fight during rape. The assistance could reduce imperfect justice for victims and survivors.

One serendipity observation was that ten out of the fourteen participants in this study were petite, confirming the observation by Jayapalan et al. (2018) that small physically built women were more vulnerable to sexual violence. Their small physique attract assailants as the molesters would prefer not to have a fight-back scenario.

5. Implications

Our primary purpose in this research was to focus on an emerging area of interest to scientists which is tonic immobility. The research reviewed the lived experiences of tonic immobility among fourteen female survivors of rape in a West African country, Nigeria. We did so by eliciting and analysing narratives from fourteen women survivors of traumatic rape, thus, presenting a variety of implications of the findings for stakeholders working with survivors or victims of rape. Psychological implication. The gravity that sets sexual assault apart from even other severe traumatic incidents is the distinctive interruption of personhood that results from a deprivation of agency and control over one's own body (Gorman, 2016). For instance Bisi, 35 years, said "I just became like a log of wood, it felt like I was paralysed all over my body. I could not even fight for my life, though I could have". During the attack itself, it is common to experience reactions such as an intense fear of death and dissociation. Even if the victim/survivor "decides" that it is safest not to physically resist in the situation, this does not mean she wanted it to happen or gave consent. For instance, Anita 22 years said that "I just complied with what they asked me to do...I just followed them". The symptoms of adult female rape victims appear generally depressing and this is heightened when the woman undergo tonic immobility. To prove this, Lola 28 years explained: "I was stuck there, unable to run away, unable to do anything to protect myself. The numbness and powerlessness were painful". Proximately after the assault, victims show high levels of distress, which gradually lessens, however, it can last for a year or more for a significant number of survivors (Boyd, 2011). Research has shown that few victims, predominantly those from relegated societies, sexual assault can reiterate assumptions about themselves as denigrated persons ("insidious trauma") (Wasco, 2003). This was why Halima lamented "I felt deflated, less confident and ashamed. It meant for me that God has left me". These can bring upon victims, excruciating and unsettling pain and uncertainty.

Another paramount implication of the research is that it provides vital data for both academic and social researchers. This is because, the study might alleviate the dearth of scientific evidence on the limited body of experiential knowledge regarding TI among abused women in Nigeria in particular, and Africa, in general. Themes generated from the lived experiences of rape and the individual interpretation of those experiences among the victims of rape in Nigeria could serve as comparative literature in relation to culturally specific decisions in care and management of rape victims. This necessitates further research; since TI is an emerging

area of research and more African studies are needed to make definite contextual conclusions. For instance, even though western scientists argue about the occurrence of either rapid or slow heartbeats among victims during incidences of rape (Kozłowska et al., 2015; Volchan et al., 2017), other scientists doubt if there are any heart rate changes at all (Hagenaars et al., 2014; Lloyd et al., 2019). In this study though, participants narrated the experience of rapid heart rates (Ifeoma 23; Farida; 18; Rejoice 31), yet this cannot be deemed conclusive. More research needs to be conducted on this aspect of TI. Future research may, therefore, look at factors responsible for heart rate dynamics during rape and how health care workers can help alleviate any of its effect on survivors.

For clinical practice, an important implication of our research derives from having local experiential data that might be useful to health-care providers who respond to rape victims. It would enable them to recognise and identify early the manifestations of TI in their day-to-day care of rape victims. This would reduce secondary victimisation among survivors. In addition, the findings from this study would offer health-care providers opinions and options for culturally competent interventions to manage victims afflicted by TI's psychological trauma. This would assist to unlock survivors' patterns of trauma response and break the cycle of psychological suffering (Kozłowska et al., 2015) in rape survivors. For instance, in this study, a half of the survivors voiced experiencing mental paralysis which has been linked to constant self-blame among victims of rape. According to (TeBockhorst et al., 2015), such knowledge and understanding is the first step in helping the victims.

Added implication is on judicial and legal practice; the present study possibly would create a positive awareness and knowledge to enable expert witnesses who could use the opportunity to educate the courts of law about it and help them understand the manifestations of TI, and TI's devastating outcomes for the victims. The judicial and legal stakeholders should be able to use the acquired knowledge to reassure the victims and survivors that TI is a usual response to rape for most victims. Knowledge about different manifestations and features of TI should be used in expert witnessing and assisting the courts of law to understand why some victims fail to resist a rape. The assistance may perhaps reduce imperfect justice for victims and survivors of rape. And these could also have a ripple effect, whereby policy positions around rape and rape victims would not only be taken to assist the judiciary and legal apparatus but also stimulate health reform policies towards effective management of rape victims.

6. Strengths and limitations

The strength of this study lies in its use of participants' exact words and expressions in illuminating how manifestations suggestive of TI were experienced by the fourteen Nigerian women as true of any narrative inquiry design. Although the findings cannot be generalized because of the small sample size, they provide an insight and baseline data into the experiences of the phenomenon of interest among female rape survivors in Nigeria; and can form a basis for further research. A limitation of the study is the inability to conduct a post-analysis member-checking with all the participants since only five out of the fourteen participants confirmed that the authors' transcription and interpretation of their stories correctly captured their true-life experiences during the period of their being sexually assaulted and the meaning they attached to those experiences.

7. Conclusion

In this study, we had sought to respond to a main research question and probes related to how tonic immobility was experienced by Nigerian women and the meaning they attached to the experience. We had asked in particular "Please tell me about your experience from the time you met with your assailant to the time you realised that you had been sexually assaulted" Probing questions such as: "Since then, what has been your thought/feeling when you think about the incident? Please, what were your reactions?". Responses to the questions produced four themes from the analysis of narratives which could enhance the further understanding

of lived experiences suggestive of tonic immobility by all relevant stakeholders. Understanding of those experiences and the meaning they attached to them were similarly suggestive of intervention strategies for prevention of psychological complications, improvement in the medico-legal practice relating to rape, improve the inadequate knowledge often associated with health practitioners in understanding of the important but often misunderstood features of the manifestations mimicking TI exhibited by rape victims. Secondary victimization will be reduced. Furthermore, the findings of this study would motivate conversations around more relevant research to focus on TI and evidences that could lead to local policy enactments specifically related to TI.

Declarations

Author contribution statement

Dooshima Dorothy Gbahabo: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Sinegugu Evidence Duma: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

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