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Front Pages

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The *Athens Journal of Demography & Anthropology* (AJDA) is an Open Access quarterly double-blind peer reviewed journal and considers papers from all areas of psychology. Many of the papers published in this journal have been presented at the various conferences sponsored by the Languages & Linguistics Unit and the Literature Unit of the **Athens Institute for Education and Research (ATINER)**. All papers are subject to ATINER's Publication Ethical Policy and Statement.

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Athens Journal of Demography & Anthropology

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President's Message

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The current issue is the second of the second volume of the *Demography & Anthropology* (AJDA), by the published by the **Literature Unit** of the **Athens Institute**. All papers are subject to Athens Institute's Publication Ethical Policy and Statement.

Gregory T. Papanikos
President
Athens Institute

20th Annual International Conference on Languages & Linguistics
5-10 July 2027, Athens, Greece

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Academic Members Responsible for the Conference

- **Dr. Valia Spiliotopoulos,** Head, Languages & Linguistics Unit, ATINER and Associate Professor of Professional Practice & Academic Director Centre for English Language Learning, Teaching, and Research (CELLTR), Faculty of Education, Simon Fraser University, Canada

Important Dates

- Abstract Submission: **8 December 2026**
- Acceptance of Abstract: **4 Weeks after Submission**
- Submission of Paper: **7 June 2027**

Social and Educational Program

The Social Program Emphasizes the Educational Aspect of the Academic Meetings of Athens Institute.

- Greek Night Entertainment (This is the official dinner of the conference)
- Athens Sightseeing: Old and New-An Educational Urban Walk
- Social Dinner
- Mycenae Visit
- Exploration of the Aegean Islands
- Delphi Visit

Conference Fees

Conference fees vary from 400€ to 2000€
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14th Annual International Conference on Demography and Population Studies, 14-19 June 2027, Athens, Greece

The Anthropology & Demography Unit of the Athens Institute is organizing its **14th Annual International Conference on Demography and Population, 14-19 June 2027, Athens, Greece** sponsored by the Athens Journal of Demography & Anthropology . The conference is soliciting papers (in English only) from all areas of Literature and other related disciplines. You may participate as stream organizer, presenter of one paper, chair a session or observer. Please submit a proposal using the form available (https://www.atiner.gr/2027/FORM-DEM.doc).

Important Dates

- Abstract Submission: **17 November 2026**
- Acceptance of Abstract: **4 Weeks after Submission**
- Submission of Paper: **17 May 2027**

Academic Member Responsible for the Conference

- **Dr. Barbara Zagaglia**, Head, Anthropology & Demography Unit, Athens Institute & Associate Professor, Polytechnic University of Marche, Italy.

Social and Educational Program

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- Ancient Corinth and Cape Sounion

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US Violent Cause Mortality: Global Pandemic, Firearm Access and Domestic Violence

By Sonia Salari, Carrie L. Sillito±, Theo Ezekiel Baende°, Emma Videla• & Lauren Shields♦*

The United States has the highest rate of firearm violent cause mortality (VCM) in the developed world. Homicide, suicide and the combination of the two, have had a negative impact on individuals, families and communities. The pandemic seems to have made the problem worse. We utilize a number of sources, including Federal Bureau of Investigation (FBI) firearm background checks (NICS) and homicide data, Centers for Disease Control and Prevention (CDC) suicide statistics, Gun Violence Archive and our intimate partner homicide-suicide IPHS data. The COVID-19 years of 2020, 2021 and 2022, along with more recent years 2023-2025 were examined and compared to pre-pandemic 2018 and 2019. In 2020, lockdowns isolated vulnerable families in homes with an abuser. FBI NICs Data shows dramatic upswings in the requested background checks for firearm acquisitions over these years. The first year 2020 was termed the year of the 'murder surge' and domestic violence (DV) increased by an estimated 8 percent. Combined IPHS events were lower in 2020, but peaked in the following 2 years. The peak year 2021, had 45,000 Americans killed by gunfire. Familicides resulted in multiple family member victims of lethal violence. Mass shootings, with 4 or more victims, most often (68%), had a link to DV, with family shot and/or a history of domestic violence. Some indicators of violence have returned to pre-pandemic levels, while others have not. Despite high rates of VCM, U.S. firearm policies have largely remained the same since 2018. No ban on civilian held military style assault weapons has occurred, since the 1994 legislation was permitted to expire. We argue, more gun accessibility and a lack of restrictions, led to high VCM during the pandemic and to some extent in the years following, which was particularly acute in the area of DV. Implications are discussed, with an eye toward prevention.

Keywords: *domestic violence; firearm policies; mass shootings; homicide; suicide; murder-suicide*

Introduction

The global pandemic began in late 2019, and had become widespread by 2020. Initially, the public health response led to social distancing and lockdowns required people to remain home from work and school. For families with an abuser(s), it could mean prolonged time with that person, isolation and inaccessible prevention resources. Domestic violence (DV) is difficult to measure because it typically occurs behind closed

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doors. It is estimated that the pandemic led to an increase in DV by about 8% in the U.S. (Piquero et al, 2021). In this article, we are interested in describing violent cause mortality, especially as it provides a cultural context related to domestic violence fatalities.

The United States has the highest rate of private gun access in the world, with more than one (120) per 100 persons—with several Americans owning more than one firearm (Karp, 2018). There is also a corresponding U.S. highest violent cause mortality among countries in the developed world (Salari et al., 2020). Approximately 46% of American homes have at least one firearm and one in 5 households acquired a gun during the pandemic (Hopkins, 2024). The increase in purchases were among first-time buyers (young, women, non-white and Hispanic) and more modest increase among long-term gun owners who were mostly white men (Miller et al, 2026).

It is well known that households with a gun have a 5 times greater chance of having that firearm involved in a suicide, homicide or fatal accident among family members, than those with no firearm. In addition, the fear of home invasions is disproportionately larger than the actual risk, since there are fewer than 350 justifiable homicides on record per year (Violence Policy Center, 2023a). Compared to other high-income countries, due to widespread gun access, the vast majority of women killed by domestic violence are in the U.S. (Grinshteyn & Hemenway, 2019).

One form of violent cause mortality involves murder and non-negligent manslaughter, which does not include justifiable forms of homicide. Compared to other high-income countries, the U.S. has 25 times the mortality from homicide. Weapons used in the killing of another person can include hands (beatings, strangulation), sharps (knives, blades, ax), drowning, and the most often utilized method in the U.S. is firearms. While males are more likely murdered, these are most often perpetrated by other males, who are acquaintances or strangers. Females are more often killed in their own homes, by their husband, partner or other relative (Allen, Salari and Buckner, 2020).

Trends over time find those who die by suicide in the U.S. have increased 35% from 2000 to 2022. Suicide was the 11th leading cause of death in 2023 with fatalities about twice those from homicide. Males are four times more likely to die by suicide than their female counterparts, partly because they choose more violent means (National Institute of Mental Health 2026). Self-abuse victims utilize a variety of methods, such as sharps, asphyxiation, jumping, poisoning and again, the vast majority occur by firearm (Choi et al, 2022). The United States has 10 times the suicide rate of the other high income developed countries (Grinshteyn & Hemenway, 2019).

When homicide and suicide are linked in the same event, there are devastating outcomes, which result in many with injuries or multiple fatalities. Violence Policy Center (2026) reported 1052 fatalities in 2025 from murder-suicide. In families, there could be children or other victims involved, resulting in a familicide or what some call family annihilation (Sillito and Salari, 2011; Violence Policy Center, 2026). The vast majority of offenders of IPHS are men, revealing a pattern of femicide in this type of violent cause mortality (Salari and Sillito, 2016; VPC, 2026). Familicides with a link to an intimate partnership in 2025 were also male perpetrated. Murder-suicides and familicides are mostly (87%) perpetrated by use of a firearm, as this method provides the means to harm others without the opportunity for them to escape the attack (VPC, 2026).

Mass shootings are defined as events with a firearm with four (4+) or more victims. The perpetrators may use military style assault weapons, which cause the greatest damage in a very short amount of time. These events might seem random, but in 2/3rds of the cases (68%) there is a strong link to domestic violence. Either the offender killed family first or they have a history of known DV (Geller et al 2021). The perpetrators of this form of violence are most often white (54%), males (95%) and the average age of the offenders is 34 years old (Rockefeller Institute of Government, 2026).

There are some federal laws which restrict firearm possession among abusers with a protective order or DV conviction, but those may not be enforced by local police in pro-gun cultures. States vary in their restrictions for firearms, and the violent cause mortality corresponds in a negative direction to enactment of these policies (Siegel et al, 2019).

Data and Methods

We utilize multiple data sources measuring violent cause mortality comparing pre-pandemic (2018, 2019) with the years of COVID-19 pandemic (2020-2022) and the years immediately after the crisis (2023-2025). In order to determine the applications to purchase a firearm, we examine the Federal Bureau of Investigation's NICs background check data by year. Homicides were measured by FBI Uniform Crime Report data for 2018 and 2019. The years beginning with 2020 homicides were measured by the National Incident Based Reporting System NIBRS. The law enforcement reporting agencies increased from 10,000 to over 13,000. Suicide rates are reported by Center for Disease Control and Prevention, National Center for Health Statistics. Age-adjusted suicide rates consider that children under 10 are not typically among those who take their own lives, so they are omitted from the population count per 100,000. The linked homicide-suicides are measured using our intimate partner homicide-suicide IPHS news surveillance data, which has been content analyzed for the years 2018 to 2022. In addition, the Gun Violence Archive for murder-suicides is also utilized, since the vast majority of events are perpetrated using a firearm. The distinction is that GVA data includes homicide-suicides including some which are not among intimate partners. For example, a disgruntled neighbor might shoot during a dispute with the person next door. GVA would include that event, whereas our IPHS news surveillance study has just cases with a current or former history of a relationship. Violence Policy Center (2023b; 2026) estimate the majority (2/3) of murder suicides are among those who are or were partners. Mass shootings and total firearm deaths by year are both measured by the Gun Violence Archive as well.

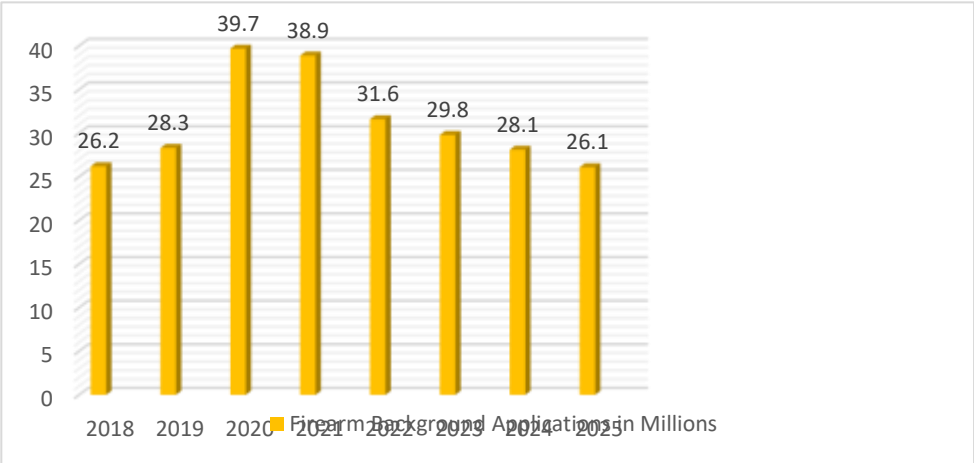
We acknowledge the use of these multiple data sets might represent a limitation. FBI NICS data only measures background checks for gun purchases, but not all who applied would obtain a firearm. In addition, there are some forms of violent cause mortality which are more difficult to measure. For years, homicides were recorded by police reports to the FBI and suicides separately by the CDC. Unfortunately, there was a problem counting linked murder-suicide events. For that reason, we only have data based upon media content analysis (Salari and Sillito, 2016; Violence Policy Center, 2023b; 2026) and the firearm method deaths recorded by the Gun Violence Archives.

Unfortunately, the VPC and GVA do not distinguish between family violence instances versus the murder-suicides among others (such as neighbors and co-workers). However, we do know that the majority are current or former intimate partners (VPC, 2026). Future murder-suicide events will be recorded by the more coordinated data collection of fatality reports in the National Violent Death Reporting System NVDRS, which now includes all 50 states.

Demand for Firearms

Firearm background checks were measured by the Federal Bureau of Investigation FBI NICS Data by year. During the pandemic, the applications for firearm purchases went up substantially. Figure 1 shows the FBI NICS Data applications by year, for the 8-year period.

Figure 1. *FBI NICS Firearm Background Applications by Year*



Source: FBI NICS (2026) Firearm Background Applications by Month Year
file:///C:/Users/u0028419/Downloads/NICS_Firearms_Checks_-_Month_Year-9.pdf

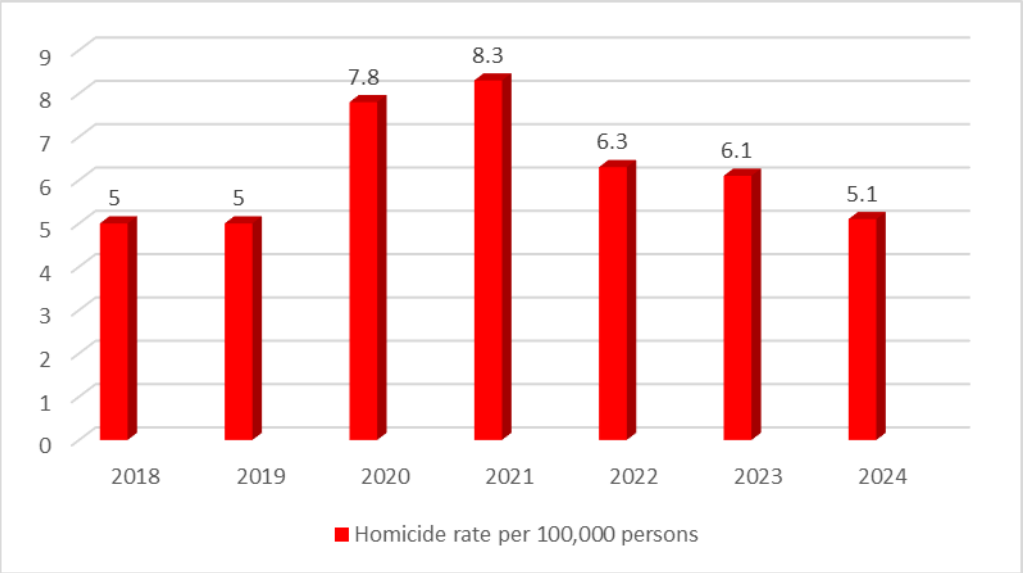
It does appear that the peak years for firearm purchases were in the midst of the crisis 2020-2021 and there is a decline since, eventually fully back to pre-pandemic levels by 2025. Clearly, the pandemic led to a rush in firearm acquisitions, which was an historical anomaly which took some time after the crisis to return to normal levels. Despite the eventual decline in numbers, these data indicate a saturation of guns in the United States.

Homicide

Homicide increased from the pre-pandemic (2018, 2019), when the nation was in the midst of the COVID-19 years (2020-2022). We will present the patterns in the years beyond the crisis as well (2023-2025). In 2018, the estimated number of murders in the nation was 16,214, which translated into 5.0 murders per 100,000 people that year (FBI 2018). The following year 2019, the estimated

number of murders in the nation was 16,425, and the rate was also 5.0 (FBI 2019). Figure 2 illustrates the increase in homicide rate, especially during the early pandemic years.

Figure 2. *Homicide rate per 100,000 by year*



Source: FBI Homicide Statistics (2019; 2023) and U.S. Department of Justice (2026)

The onset of the pandemic led to stay at home orders, which required a large shift from the normal experiences of school and work. At the same time, Americans had a sharp increase in the background checks for firearm purchases. The first year of the pandemic was 2020, which was dubbed by many as the 'murder surge.' There were 7.8 homicides for every 100,000 people in the U.S. that year, up 30% from the year before (Gramlich, 2021). The following year of 2021 had consistent numbers for violent and property crimes, however, murders specifically increased 4.3% from just under 22,000 in 2020 to 22,900 in 2021. To give more perspective, the 2021 homicide rate of 8.2 deaths per 100,000 people was 55% higher than a decade prior in 2011 (National Center for Health Statistics, 2022). In addition, according to my calculations, there were 62.7 homicides or non-negligent manslaughter per day in the U.S. at the 2021 peak. In 2022, the murder rate had declined by 6%, with 6.3 per 100,000 victims of homicide (FBI National Press Office, 2023). Interestingly, there was a decline in homicide in 2023, however domestic violence homicides remained elevated, and even slightly increased (Council on Criminal Justice, 2023).

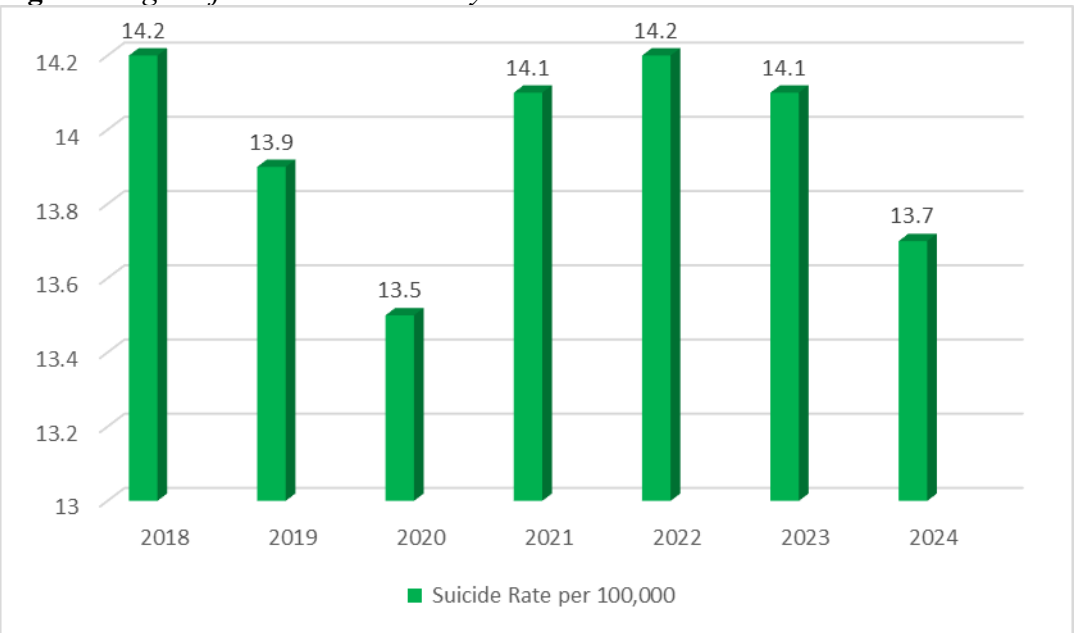
In the years since the pandemic, the homicide rate has declined back to previous levels, in 2023 there were 20,280 deaths (6.1 per 100,000) compared to 17,420 (5.1) in 2024 (U.S. Department of Justice 2026). The final statistics were not yet available for the year 2025. There are some clear distinctions among sub-populations. For example, in 2023, males (9.3 per 100,000) continued to have 3.5 times the homicide rate of females (2.6) (Bureau of Justice Statistics, 2025). We know from previous research that perpetrators of male murders are most often

other men/boys who are strangers or acquaintances. In contrast, women and girls are most often killed in their own homes by a current or former intimate partner or other relatives (Allen et al, 2020).

Suicide

Suicide is another form of violent cause mortality, which even surpasses the homicide rate in the U.S. The CDC reports from the National Center for Health Statistics rates of those who died by suicide per 100,000 are shown in Figure 3.

Figure 3. *Age-adjusted Suicide Rate by Year*



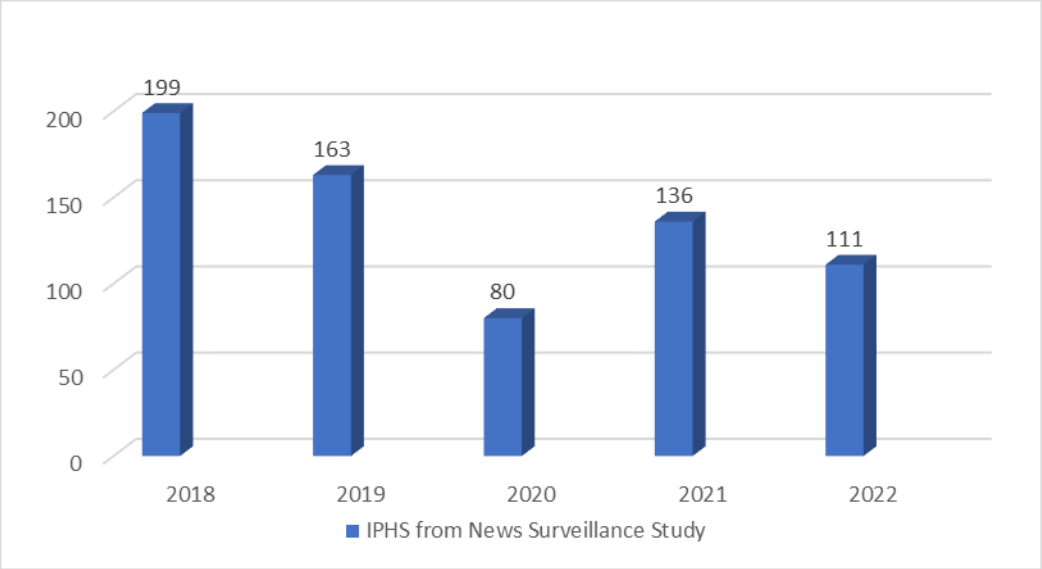
Source: National Institute of Mental Health (2026) Suicide https://www.nimh.nih.gov/health/statistics/suicide and CDC 2026 Suicide Data and Statistics https://www.cdc.gov/suicide/data/index.html

Interestingly, of the years available for the study, the suicide rate was lowest in the first year of the pandemic. We will cover this trend in the discussion. The corresponding raw numbers of death by suicide range from 45,979 (Ehlman et al., 2022) in 2020 to 49,500 in 2022 – which broke the record for single year (National Center for Health Statistics CDC, 2023) and 2024 declined slightly to 48,824 (CDC, 2026). At the time of this writing, 2025 suicide statistics were not yet available.

Homicide-suicide and Familicide

Figure 4 illustrates the results of our IPHS content analysis from news surveillance available for the years 2018-2022. These do not represent a full accounting for all IPHS events during the time period, but rather a sample.

Figure 4. *Intimate Partner Homicide Suicide Events*

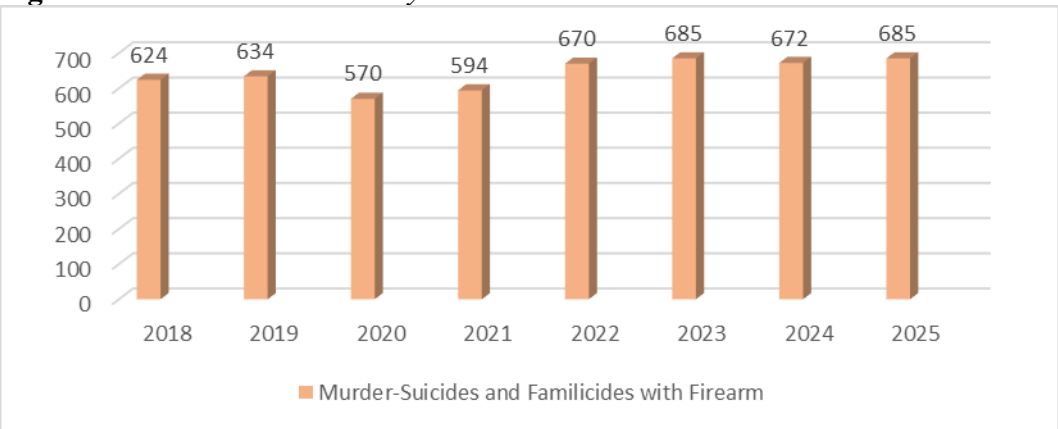


Source: Our IPHS news surveillance study n=689 events.

The most IPHS cases were prior to the pandemic years, and 2020 values represented the lowest of the 5 years with 80 events documented that year. The following year jumped substantially to 136, but still below the pre-pandemic levels. This data is still in the process of collection, so there may be more in the most recent years post-pandemic.

In order to compare to another data set, we included the Gun Violence Archive murder suicides. Figure 5 illustrates murder-suicides by firearm documented by the Gun Violence Archive.

Figure 5. *U.S. Murder-suicides by Firearm Gun Violence Archive*



Source: Gun Violence Archives (2026) Gun Violence Archive Past Summary Ledgers, (accessed 6/23/26) https://www.gunviolencearchive.org/past-tolls

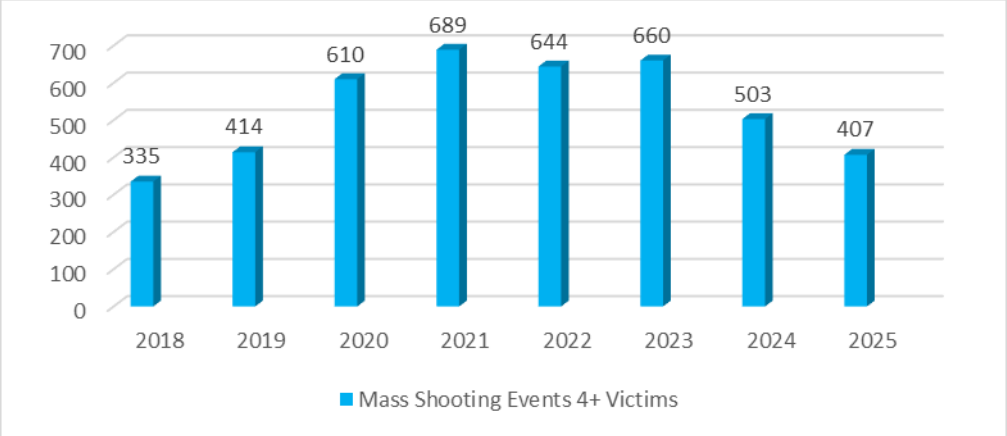
Gun Violence Archives (2026) found a similar reduction in murder-suicides during the two most active pandemic years 2020 and 2021. However, there appears to be an increase in these fatalities in the post-pandemic years 2022 through 2025. As a reminder, these may include other relationships between victim

and perpetrator, but the majority are current or former intimate partners (Violence Policy Center, 2023b; 2026). Figure 5 illustrates that linked murder-suicides continue to show high levels, without returning to pre-pandemic levels. Most of these represent domestic violence fatalities and might be a lasting effect of the firearm acquisitions during the pandemic.

Mass Shootings

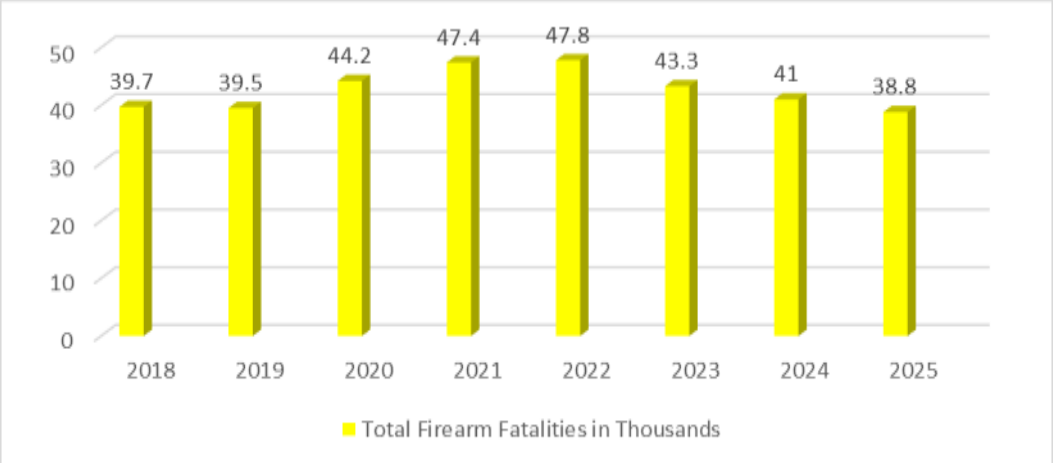
Figure 6 utilizes mass shooting data from the Gun Violence Archive by year.

Figure 6. *U.S. Mass Shootings by Year*



Source: Gun Violence Archives (2026) Gun Violence Archive Past Summary Ledgers, (accessed 6/23/26) https://www.gunviolencearchive.org/past-tolls

Figure 7. *U.S. Total Firearm Fatalities by Year*



Source: Gun Violence Archives (2026) Gun Violence Archive Past Summary Ledgers, (accessed 6/23/26) https://www.gunviolencearchive.org/past-tolls

The pandemic years brought an increase in mass shootings, which remained until 2023, before the decline back to pre-pandemic levels began to emerge in 2024 and 2025. These numbers, although declined, still represent a serious problem with violence in American society.

Total Americans killed by gunfire - all causes - over the years is illustrated in Figure 7, again using the Gun Violence Archives data. These include homicides, suicides, accidental and defensive firearm fatalities (Gun Violence Archives, 2026).

Policy

The 2nd Amendment of the U.S. Constitution states "A well-regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed (U.S. Constitution, 2026)." Many changes have occurred since 1791, including the saturation of firearms and the potential for lethality from the technology—particularly with regard to automatic and militaristic weaponry.

In 2024, during the Biden Administration, the Surgeon General Vivek Murthy declared firearms a public health crisis (CBS, 2024), but this effort has not translated into U.S. legislative action. Federal firearm policies in the United States have not kept pace with the increase in violence we saw in the pandemic years. There was one improvement, where Congress overturned the 1996 Dickey Amendment, which prohibited firearm research funding for over 20 years. The legislation now provides us with the ability to fund firearms research through the Centers for Disease Control and Prevention. Unfortunately, that funding has been influenced by the overall decline in federal funding for research since the second Trump administration took power.

Violence Against Women Act had a firearm ban for those who are the subject of a protective order or have a domestic violence conviction. Unfortunately, Salari and Sillito's research has indicated that 'pro-gun' states are not likely to have many state firearm regulations in place, nor are they likely to enforce these federal policies.

Mass shootings are possible due to military style assault weapons. The U.S. once had a U.S Assault Weapons Ban on these automatic firearms with magazines, beginning in 1994. The legislation helped to reduce firearm deaths, but Congress permitted it to expire in 2004 and it has not been renewed, due to the pressures of the gun lobby (Salari 2021). It is important to recall, there are variations in violent cause mortality within the U.S., due to state gun law regulations (or lack thereof). States and regions with more restrictive firearm laws have lower homicide and suicide rates (Siegel et al 2019) and fewer IPHS events (Salari and Sillito, 2016).

Discussion

The pandemic and widespread gun access are both issues which affected public health in the 8 years studied. Homicide records showed a 'murder surge' once the COVID-19 crisis began and this may have been related to the conditions where mental health was affected or when partners and families were ordered to stay at home—possibly with an abuser. The first year of the pandemic 2020 was not always the most violent, with a decline in suicide and murder-suicides and IPHS. There may have been a concern for survival in that first year, which we consider a 'crisis effect.' However, the subsequent year(s) of the public health crisis and new firearm purchases

may have led to the increases in fatalities, seen particularly in 2021. Some of the violent cause mortality declined in the post-pandemic years, but preliminary results indicate murder-suicides have dipped and then registered a sustained increase. This may reflect potential evidence indicating that while overall violent crime declined, domestic violence fatalities continue to be elevated. Perhaps families are the most affected long-term.

Much of the lethality in the United States is due to access to guns. Firearms were sought in record numbers during the pandemic. While many in the older generation already had access to numerous firearms (some of which were inherited), the younger generation was the major purchaser of these new guns during the public health crisis (Roess et al., 2023). Why the rush to own weapons? For many, there was a fear that modern civilization may yield to a violent fight for basic resources. Other items were also hoarded, such as toilet paper and non-perishable groceries. The 'fend for yourself' belief may be more intense in the U.S. individualist culture, than other locations around the world. In addition to firearm access, there is also a struggle with mental health in the USA, but that may not be different from other developed countries. Mental health outcomes are different when guns are so accessible. We are concerned that the stockpile of firearms acquired during the pandemic will continue to affect families for decades to come. Other countries have done something to curb the lethality of firearms – such as Switzerland's voluntary firearm buy back along with the storage of bullets in a separate location (Salari et al, 2020). This has led to favorable outcomes with the reduction of violent cause mortality, particularly homicide, suicide and homicide suicide events. Mass shootings increased during the pandemic years of the study, which may be associated with the more widespread gun access. This trend is concerning, and many believe a renewal of the assault weapons ban would be beneficial. Clearly, policy responses have not kept up with the increase in firearm access and violence which came with the pandemic, but there has been some level of normalization of trends among some of these forms of violent cause mortality.

If we take a long-term, international perspective, we can conclude the US VCM levels are far above all other developed countries and United States rates and fatalities have increased over our own history in the past quarter century. Increased saturation of firearms during the pandemic, with little regulation or enforcement does not bode well for the future of public health in the USA.

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Social Capital–Neighborhood Stress Pathways in Aging: A Conceptual Framework for Prostate Cancer Vulnerability in Middle- and Old-age Black Men in the USA

*By James Muruthi**

Middle- and old-age Black men in the United States continue to experience disproportionately high prostate cancer incidence, aggressive disease, and mortality despite decades of research on biological, behavioral, and healthcare determinants. Existing health disparities frameworks clearly identify relevant social and structural factors but offer only a limited explanation of the mechanisms by which neighborhood disadvantage becomes biologically embedded in this population. This conceptual paper proposes a multilevel mechanistic framework linking neighborhood structural stressors to prostate cancer vulnerability among middle- and old-age Black men. Drawing on life course theory, fundamental cause theory, the stress process model, social capital theory, and allostatic load theory, the framework outlines a cascading pathway in which neighborhood disadvantage influences bonding, bridging, and linking social capital, which, in turn, affects sleep health as a proximal recovery process. Impaired sleep is proposed to increase allostatic load, accelerate biological aging, and ultimately elevate prostate cancer risk and adverse outcomes. The framework advances prostate cancer disparities research by integrating structural, relational, and biological processes into a single testable model, distinguishing the unique roles of different forms of social capital, and positioning sleep as a key mechanistic pathway linking social environments to physiological dysregulation. This paper generates empirically testable hypotheses and identifies modifiable intervention targets at neighborhood, community, clinical, and policy levels to advance precision prevention strategies and reduce persistent prostate cancer disparities among middle- and old-age Black men.

Keywords: *Prostate cancer disparities; Black men; Neighborhood stress; Social capital; Sleep Health*

Introduction

The Persistent Challenge of Prostate Cancer Disparities

In 2025, there were 313,780 new cases of prostate cancer (PCa), a 15% proportion of all new cancer cases in the United States (National Cancer Institute 2026). This cancer also led to an estimated 35,770 (5% of all cancer deaths) deaths in the same year. The latest population data also reveal that over 3.5 million US men were living with PCa in 2022. A closer look at age-adjusted incidence rates reveals that Non-Hispanic Black men (Black men) continue to suffer from the disease at a

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disproportionately higher rate than all other racial groups, with an incidence rate of 194.8 per 100,000 (based on 2018 – 2022 data). Black men are 67% more likely to be diagnosed with prostate cancer and are more than twice as likely to die from it compared to Non-Hispanic White men. The disparity persists in older age as PCa rates remain highest in Black men 50 years and older (9.3 per 10,000, based on 2022 data) than other racial groups (SEER, 2026). Recent increases in disease incidence rates are partly driven by annual surges of 2.6% in men younger than 55 years, 6.0% in men aged 55–69, and 6.2% in men aged 70 and older (Kratzer et al. 2025). Despite the clear documentation of these PCa disparities, efforts to prevent or reduce the severity of the disease among the disproportionately affected middle- and old-age Black men have had little impact. This signals a need for a mechanistic understanding of the pathways through which PCa predictors operate to cause adverse health outcomes in this population.

At a minimum, we know that the highlighted disparities persist even after accounting for individual risk factors, such as age and socioeconomic status, signaling the significance of structural and social determinants of PCa incidence and mortality in Black men. The adverse PCa health effects of neighborhood disadvantage, structural racism, barriers to quality care, and the cumulative disadvantage caused by chronic stress are well documented (Boyle et al. 2024). These factors intersect with individual factors, making it hard to eliminate disparities with a single strategy (Lowder et al. 2022). Indeed, theories and frameworks for understanding health disparities have called for multilayered approaches to conceptualizing and operationalizing key constructs. Despite the well-documented structural determinants of prostate cancer disparities, the field lacks a parsimonious and testable framework linking these distal factors to biological risk. Existing models identify relevant domains, but do not specify how structural conditions become physiologically embedded. This paper addresses this gap by proposing a conceptual framework in which neighborhood disadvantage shapes social capital (a critical pathway in the low-resource areas), which, in turn, influences sleep, a central recovery mechanism driving biological vulnerability.

Conceptual Innovation

The proposed framework contributes to existing research on prostate cancer disparities research in three ways. First, it integrates neighborhood structural stressors, social capital, and sleep health into a single multilevel framework. Second, it distinguishes bonding, bridging, and linking social capital as distinct intermediary pathways. Third, it positions sleep as a proximal biobehavioral recovery mechanism linking social exposures to physiological dysregulation and prostate cancer vulnerability.

Limitations of Existing Disparity Models

This paper proposes a mechanistic framework to supplement existing health disparities models, which have significant limitations. First, individual-level models explain genetic predisposition, health behaviors, and clinical risk factors, but they inherently do not account for environmental influences that explain the persistence of racial disparities in prostate cancer outcomes after statistical adjustment. Empirical

studies consistently show that adjusting for individual-level factors, such as socioeconomic status, health behaviors, and clinical risk factors, does not eradicate racial disparities in prostate cancer outcomes between Black and White men (Albain et al. 2009, Robbins et al. 2016). This suggests salient contextual and structural determinants play a central role in shaping prostate cancer risk and progression. Interventions targeting behaviors without addressing structural barriers have limited long-term effectiveness in reducing disparities (Thornton et al. 2016).

At the multilevel, predominant frameworks for understanding health disparities, such as the National Institute on Minority Health and Health Disparities (NIMHD) Research Framework (NIMHD 2025), identify key health domains, including biological, behavioral, environmental, sociocultural, and health care system factors. Still, they do not specify the causal relationships and mediating pathways linking these domains. As a result, these frameworks are often applied descriptively, leading to fragmented analyses that identify relevant factors but lack a clear explanation of how they interact in a predictive sequence. This challenge leads to fragmented analyses and poor identification of critical intervention points in health disparities research (Brown et al. 2019). Hence, the key limitation is not the identification of determinants, but rather the absence of clear pathways through which structural conditions become biologically embedded to produce prostate cancer vulnerability.

Socioecological models are also great for organizing cross-level determinants, from individual to structural contexts (Bronfenbrenner 1978, McLeroy et al. 1988). However, these models function as organizing descriptive models rather than mechanistic frameworks with clear conceptual links between levels. While they highlight the significance of cross-level associations, they do not explicitly outline the intermediate processes linking distal structural factors to proximal biological outcomes (Golden & Earp 2012). The lack of mechanistic pathways across the levels hinders the development of interventions with clear conceptual directions using socioecological models (Golden & Earp 2012). For example, on the topic of Black men and prostate cancer, these models may identify neighborhood disadvantage at the community level and health behavior at the individual level, but fail to specify the intervening mechanisms, such as stress, sleep disruptions, and social capital, that often explain how neighborhood-level factors manifest in health behaviors and outcomes.

Taken together, these frameworks identify relevant domains of health determinants but do not often provide a parsimonious and testable guide on how structural disadvantage translates into prostate cancer vulnerability. This gap limits both empirical testing and intervention development, underscoring the need for mechanistic frameworks that specify the sequential pathways linking structural conditions, social processes, and biological outcomes.

Study Aim

Given these limitations, this paper aims to develop a multilevel conceptual pathway framework that addresses the mechanistic gaps in existing prostate cancer dipartites models. This mechanistic framework explicitly specifies how distal structural determinants translate into prostate cancer vulnerability through intermediate social capital and recovery processes. The core innovation of this framework lies in its

comprehensive distal → intermediate → , *and* proximal cascade. Neighborhood structural factors (distal) impact the availability and quality of social capital (intermediate), which, in turn, impairs bodily recovery processes (proximal), ultimately affecting physiological aging and increasing PCa risk. We center sleep as a primary and measurable recovery mechanism because of its strong link to quality of oncological health across age groups, especially among middle- and old-age individuals (Han et al., 2025). Positioning sleep as a key proximal pathway through which neighborhood adversity and social capital are embodied (McEwen, 1988; Williams et al., 2019) provides a novel, testable framework for understanding how structural disparities and social relationships jointly shape cancer disparities in aging Black men.

As such, we offer a mechanistic causal model that adds to the existing descriptive and multi-level frameworks. Specifically, the framework proposes that neighborhood structural disadvantage shapes the composition and use of social capital, which influences sleep as a recovery mechanism, leading to biological dysregulation and increased prostate cancer vulnerability. In the framework, accelerated aging and allostatic load represent biological vulnerability, while prostate cancer incidence and progression are clinical outcomes. This framework is designed to support empirical testing through multilevel mediation models that link neighborhood conditions, social capital, sleep, and biological markers.

Roadmap of the Paper

This paper proceeds as follows: (1) The *literature review* synthesizes evidence on prostate cancer disparities in the US, neighborhood stressors, social capital, racism, and sleep as a behavioral mechanism, to shape the rationale for a mechanistic framework. (2) The *methodology for framework development* section outlines the theoretical grounding, construct selection, and integration approach. (3) The *results* section describes the cascading multilevel conceptual framework detailing the distal (neighborhood stressors), intermediate (social capital), and proximal (sleep) pathways, and presents explicit testable hypotheses. The discussion shows the contributions of the framework relative to existing ones, as well as its implications and limitations. (4) The *conclusion* section summarizes the manuscript and offers directions for empirical testing.

Literature Review

Prostate Cancer Disparities in Black Men: Beyond Individual Risk

Black men in the United States face a disproportionately higher burden of prostate cancer (PCa) compared to all other racial or ethnic groups. Recent SEER (CDC 2014) data show that this group has the highest age-adjusted incidence rate of 170–180 per 100,000, compared with 100–110 per 100,000 for their White counterparts. The disparities in incidence rates persist across different age groups and all stages, including early-onset and advanced disease (Krazter et al. 2025). Black men also have a PCa mortality rate more than twice that of White men (approximately 40 per 100,000 compared to 18 per 100,000), with the disparity remaining even

after accounting for stage at diagnosis (CDC 2014, Chai et al. 2025). This signals factors beyond clinically presenting factors (e.g., treatment access). Another indicator of the gap is that Black men are more likely to be diagnosed with high-grade and advanced state PCa (Gleason score ≥ 8), and they are more likely to experience the disease at earlier ages (Lillard et al. 2022, Wiginton 2024). This shows a possible acceleration of disease progression related to structurally induced cumulative stress exposures. Individual-level analyses have also shown similar gaps. For example, studies have shown that adjusting for individual-level socioeconomic variables does not eliminate PCa burden across Black and White racial or ethnic groups (Albain et al. 2009, Robbins et al. 2016). This result indicates the significance of unmeasured factors such as neighborhood exposures, discrimination, and chronic distress.

Geronimus (1992) explained that cumulative exposure to adverse conditions, such as racism, leads to premature biological aging and health deterioration among Black Americans – weathering. This view argues that health declines earlier and more rapidly in marginalized populations due to chronic stress. Therefore, accumulated stress leads to premature aging and overall disease vulnerability, conditions that then lead to early onset and intense severity of the age-related PCa disease (Geronimus 1992). Empirical studies highlight that Black men report higher allostatic load than White counterparts, and these higher scores are associated with worse cancer outcomes (Geronimus et al. 2006, Li et al. 2024). The weathering perspective may explain why Black men are more likely to report early onset and more advanced PCa versus White men. The weathering hypothesis provides a critical framework that links neighborhood factors to biological risk factors for PCa. Still, it does not offer mediating explanations from structural adversity to biological wear-and-tear.

Neighborhood Environment as a Structural Determinant of Health

There is a deep history of research indicating that neighborhood disadvantage increases risks to morbidity and mortality among underserved Black populations (Holder et al. 2025). Cancer studies conceptualize neighborhood environments based on socioeconomic (e.g., employment rates), social (e.g., crime rates), and physical (e.g., public transportation network) characteristics of the areas where people live (Gomez et al. 2015). Disadvantaged neighborhoods experience overcrowding, reduced social cohesion, inadequate access to services, and violence (Namin et al. 2021, Urban Institute 2017), all of which are risk factors for poorer PCa health. Additionally, such neighborhoods have insufficient oncological health facilities for PCa screening, treatment, and care, and the existing facilities are overwhelmed because of limited resources (Gardner et al. 2025, President's Cancer Panel, 2022). Numerous studies have reported associations between residence in a disadvantaged neighborhood and various physiological consequences, including higher PCa risks, prevalence, and mortality (Ziegler-Johnson 2011). The higher PCa risk and burden among Black men do not decrease even after accounting for race or ethnicity (Mahal et al. 2022).

Neighborhoods are also significant predictors of cellular aging. Epidemiological studies that account for neighborhood factors such as zip codes have shown that people living in neighborhoods with scarce socioeconomic resources, such as quality housing,

proper food, green spaces, and jobs, are likely to have high cellular aging (Gomez et al. 2015, Rodrigues et al. 2026). For example, a study of 1,125 US adults found that living in low-opportunity neighborhoods was associated with significantly higher CDKN2A RNA levels, a marker of biological aging (Rodrigues et al. 2026). It also showed that associations were strongest for social and economic opportunities, depicting a socially structured pattern of aging. Accelerated biological aging, as depicted by such studies, is strongly linked to increased risks of developing prostate cancer (PCa), typically called early-onset occurrence (Yin et al. 2024). Therefore, to lower PCa risk, we must address neighborhood stressors that cause early-onset and aggressive cases in Black men.

Social Capital: Conceptualizations and Links to Health

Social capital refers to the resources embedded in social networks that facilitate collective benefits and individual well-being through trust and norms of reciprocity (Putnam 2000). Putnam (2000) further distinguished two types of social capital: ***bonding*** (strong homogeneous ties that provide emotional and instrumental support for individuals to get by) and ***bridging*** (weaker cross-group connections that provide opportunities and informational support to get ahead). ***Linking*** capital (vertical links of respect and institutional support between individuals and those in positions of power) was later introduced by Szreter and Woolcock (2004). In the context of aging and health disparities, the clear theme across these three forms of capital is the health-impacting resources that individuals derive from the unique levels of capital (Poortinga 2012). These resources may either buffer or exacerbate the effects of social disadvantage across the lifespan, especially late-life health outcomes.

Empirical evidence indicates that social capital is generally protective against adverse cancer outcomes in structurally disadvantaged neighborhoods, but its effects are context dependent (Fuemmeler et al. 2023). Higher levels of social capital, especially bonding and bridging types, are associated with greater cancer screening uptake, better treatment adherence, and reduced mortality risk among older adults, even after accounting for individual sociodemographic factors (Dean et al. 2015, Leader & Michael 2013). In the PCa literature, higher neighborhood social capital (e.g., neighborhood participation) is associated with a greater likelihood of PSA screening among high-risk Black men (Dean et al. 2015). In contrast, lower neighborhood linking capital is associated with lower prostate cancer incidence but higher PCa mortality (Hamano et al. 2021). Evidence linking bonding capital to health reveals a conflicting theme: while dense close ties offer support for good health, they may also produce stress, negative affect, and maladaptive behaviors that are detrimental to health in resource-limited neighborhoods (Niu et al. 2025, Poortinga 2012). Linking capital (vertical connections to health providers and institutional trust) is protective against adverse health outcomes because it enables older men to navigate health systems to reduce structural barriers (Hamano et al. 2021, Szreter & Woolcock 2004). Collectively, these studies emphasize social capital as a key consideration in PCa health and invite researchers to account for bonding, bridging, and linking forms of social capital as mediating mechanisms that influence PCa outcomes at the physiological level.

Recovery Processes: Sleep as a Proximal Biological Mechanism

At the physiological level, sleep serves as a critical restorative process that supports healing and is strongly linked to health outcomes. Studies underscore that chronic stress and circadian disruption accumulate physiological wear and tear, problems regulated through nightly restoration of immune and metabolic balance (MacEwen & Karatsoreos 2022, McEwen 2015). Black individuals report sleep health disparities, such as poorer sleep quality, higher insomnia rates, and shorter sleep duration, even after accounting for socioeconomic factors (Jackson et al. 2020, Slopen et al. 2016). These adverse reports are caused by strong evidence linking neighborhood disadvantages to sleep risk factors: noise, perceived insecurity, and hyperarousal caused by heightened vigilance (Hicken et al. 2013, Troxel et al. 2018). Further evidence suggests that sleep is a proximal driver of inflammation, metabolic dysregulation, and accelerated cancer progression. Specifically, insomnia and poor actigraphy-measured sleep patterns are associated with greater PCa disease burden, including higher PCa occurrence and increased mortality risk among Black men in the US (Anukam et al. 2026).

Gaps and Need for an Integrated Framework

Together, the evidence discussed above positions sleep as a central biobehavioral pathway through which structural disadvantage and social capital factors become biologically embedded. It depicts a cascading relationship that explicitly includes sleep (proximal) and social capital (intermediate) as critical links between neighborhood adversity and prostate cancer vulnerability in middle- and old-age Black men in the US. To our knowledge, no existing framework combines distal neighborhood factors, intermediate social capital, and proximal sleep into a testable research tool for studying and addressing PCa health disparities in Black men. The proposed framework fills this gap by specifying pathways from neighborhood structural adversity social capital → sleep → prostate cancer/accelerated aging.

Methodology for Framework Development

Approach and Study Design

This paper utilizes a conceptual synthesis methodology proposed by Jaakkola (2020) for developing a multilevel model that examines conceptual pathways from neighborhood structural stressors to prostate cancer vulnerability in middle- and old-age Black men. As per the model paper template (Jaakkola 2020), this paper proposes a focal phenomenon, the cascading pattern from distal adversity to accelerated aging and PCa vulnerability, by identifying key constructs (neighborhood stressors, social capital, sleep, and physiological vulnerability) and proposing novel theory- and evidence-backed relationships between them. The data used for the proposed model are drawn from existing theories and empirical findings in social epidemiology, gerontology, and the biopsychosocial literature.

The study design follows two recommendations outlined by Jaakola (2020). First, the choice of theories or concepts is justified. The framework integrates life-course perspectives, fundamental cause theory, stress process model, social capital theory (bonding, bridging, and linking), and allostatic load theory. These are well-suited for this framework because they collectively explain the sequential influence of structural conditions on accelerated aging and PCa vulnerability, through social capital and biological mechanisms – an area insufficiently addressed by existing descriptive frameworks in cancer health disparities literature. Second, the choice of domain and method theories. Domain theories consist of literature that outlines critical elements of the phenomenon under study, prostate cancer disparities in aging Black men.

In contrast, method theories provide conceptual frameworks for explaining how distal stressors translate into proximal biological outcomes (Lukka & Vinnari 2014). Empirical testing is beyond the scope of this work, but the framework presents testable, literature-based hypotheses. Based on literature-informed claims, evidence, and theories, the design will ensure the resulting framework is both logically coherent and positioned for future empirical testing.

Theoretical Grounding and Integration

Five interconnected theories inform the proposed framework. Each addresses a unique component of the cascading effects of neighborhood structural adversity on prostate cancer (PCa) vulnerability**.** First, the *lifecourse perspective* (Elder 1998) provides a temporal lens and posits that old-age health is predicted by the accumulation of exposures and key transitions across the lifespan, not by a single event. This lens informs our conceptualization of PCa vulnerability among middle- and old-age Black men, showing most visibility in this age group. The greater risk and vulnerability to adverse PCa health indicate accumulated stress on the body (Geronimus 1992). Relatedly, *fundamental cause theory* (Link & Phelan 1995) adds that structural conditions (e.g., neighborhood disadvantage, segregation, and violence) are key drivers of individual health that must be addressed to reduce or eliminate disparities. Third, the *stress process model* (Pearlin et al. 1981) emphasizes that the effects of distal stressors (e.g., neighborhood adversity) on individual health are transmitted through intermediate social resources (e.g., social capital) and manifest as biopsychological dysregulation. Fourth, *social capital theory* (Bourdieu 1986, Szreter & Woolcock 2004) proposes a three-tiered model of bonding (strong, homogeneous ties), bridging (weaker, cross-group connections), and linking (vertical ties with powerful individuals and institutions). The three tiers are unique and have divergent effects on health, especially for individuals in under-resourced settings (Szreter & Woolcock 2004). Finally, *allostatic load theory* (McEwen 1998) justifies the biological outcome pathway, explaining how chronic psychological stress is embedded in adverse PCa risks and accelerated aging.

The framework proposed here integrates these theories into a unified conceptual cascade. Particularly, it expands the stress model theory into three novel ways: (1) it unpacks the mediator (social capital) into bonding, bridging, and linking, allowing for the modelling of varied non-linear mediating effects; (2) it includes linking capital (trust in institutions and power brokers) which has been under-represented in oncology research despite its clear relevance to healthcare use, navigation and quality for older

Black men (Wood & Patel 2024); and (3) it identifies sleep as the proximal outcome (or chief recovery process) through which stress process becomes biologically embedded. This positions sleep as a vital pathway linking social capital to allostatic load, a mechanism absent from prior PCa disparities frameworks. Together, these theories are the conceptual foundation for a model that includes temporal (life course), structural (fundamental cause), causal (stress process), relational (social capital, and biological (allostatic load) elements.

Construct Selection and Organization

This paper uses an explicit three-step criterion to construct the proposed framework. First, all constructs must have **empirical grounding** in peer-reviewed literature that links them to prostate cancer risk, allostatic load, and racial health disparities. Second, constructs should be **modifiable** to enhance the framework's translational utility. That is, they can be influenced through policy, community, or individual-level interventions. Third, each construct is **relevant to the population** (middle- and old-age Black men in the United States) and the **outcome** (prostate cancer vulnerability - including incidence, progression, and mortality) of interest.

Applying this criterion identified concentrated poverty, residential segregation, environmental disorder, and community violence as distal constructs of neighborhood structural distress; three intermediate constructs of social capital (bonding, bridging, and linking capitals); and two proximal constructs (sleep health and allostatic load). Table 1 below provides the levels and measurement approaches for each construct, drawn from the literature or standardized instruments. These details move the framework from abstract conceptualization to a tool that can be empirically tested.

Table 1. *Operationalization of Key Constructs*

Construct	Level	Proposed Measure(s)
Neighborhood structural stressors	Distal	Percentage of population below poverty line, percentage of Black residents, violent crime rate, physical disorder index
Bonding social capital	Intermediate	Family network size, frequency of contact, perceived emotional support
Bridging social capital	Intermediate	Collective efficacy scale, neighborhood cohesion scale
Linking social capital	Intermediate	Trust in police, healthcare system, and local government
Sleep health	Proximal	Actigraphy (sleep efficiency,

		duration), Pittsburgh Sleep Quality Index, insomnia symptoms
Allostatic load	Proximal / Outcome	Composite index: C-reactive protein, interleukin-6, systolic and diastolic blood pressure, hemoglobin A1c, high-density lipoprotein, waist-hip ratio, urinary cortisol
Prostate cancer outcomes	Outcome	Registry-linked or self-reported diagnosis, Gleason grade, stage at diagnosis, mortality

Results: The Multilevel Conceptual Framework

Overview of the Framework

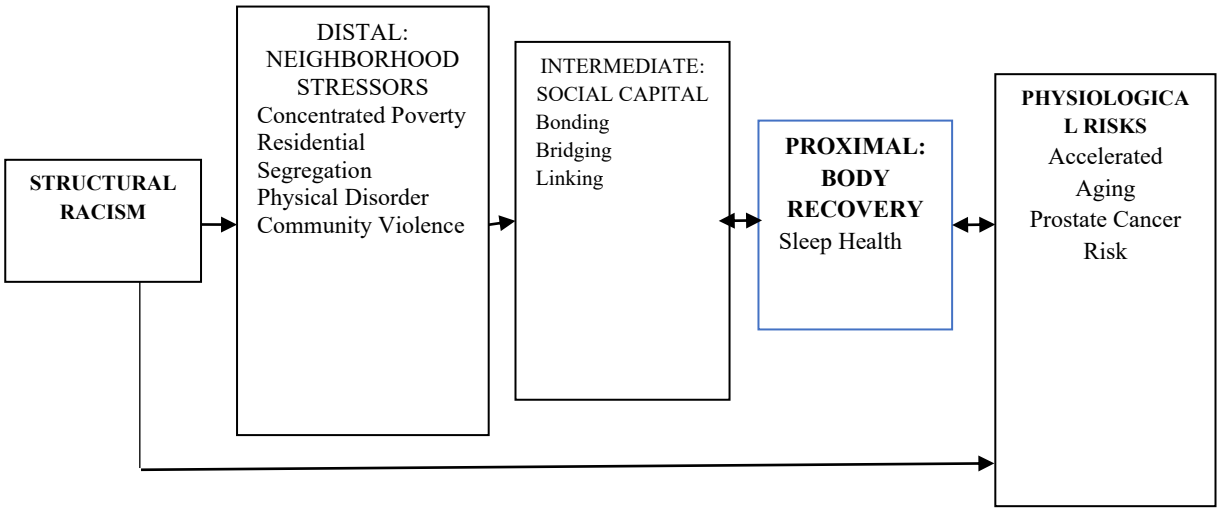
Figure 1 below shows the proposed conceptual framework. It outlines a cascading pathway from distal structural determinants to prostate cancer vulnerability among middle- and old-age Black men in the US. The conceptual sequence involves three interconnected levels: distal (neighborhood structural stressors), intermediate (social capital), and proximal (body recovery through sleep). The sequence culminated in physiological vulnerability operationalized as accelerated aging and prostate cancer risk. The main argument is that neighborhood structural stressors dictate the availability and quality of social capital, which in turn affects sleep recovery processes, ultimately affecting allostatic load and prostate cancer outcomes. Theoretically, the model also indicates bidirectional relationships, including the potential reduction of social capital due to poor health outcomes and social withdrawal due to sleeping problems. Level-by-level descriptions are outlined below.

Level 1: Distal – Neighborhood Structural Stressors

Fundamental health theory (Link & Phelan 1995) posits that social conditions are key drivers of health disparities because they provide flexible resources that buffer health risks. Chronic exposure to neighborhood stressors is the foundation for understanding psychological strain and biological dysregulations that lead to PCa disparities across the life course of Black men in the US. Critical race theorists have argued that systemic racism is the bedrock that produced unjust sociopolitical indicators of health, which deny equitable access to education, health care, employment, housing, infrastructure, and political institutions (Bailey et al. 2021). Elder (1998) adds that these hardship conditions accumulate, with consequences visible in middle and old age. Inequitable access to resources disenfranchises Black neighborhoods, causing chronic neighborhood stress. Following DeRouen and colleagues' (2025) lead, we operationalize neighborhood-level structural stressors using four interconnected

domains: concentrated poverty, residential segregation, physical disorder, and community violence.

Proposition 1 (Neighborhood → Social Capital): *Chronic exposure to neighborhood structural stressors degrades all forms of social capital, leading to poor sleep health*. The result is a maladaptive social capital profile: low bridging/linking and high (but often low-quality) bonding. Existing evidence outlines the relationships among factors in the proposed cascade, but few frameworks have tested the proposed mediation path linking neighborhood stressors and sleep via social capital. Indeed, Dean and colleagues (2015) found that neighborhood social capital varies across contexts and is associated with health behaviors among Black men. Barber and colleagues (2016) used data from the Jackson Heart Study to illustrate that higher neighborhood adversity was significantly associated with lower neighborhood social cohesion. Additionally, living in neighborhoods with limited resources is directly associated with shorter and lower-quality sleep (Troxel et al. 2018). On the one hand, neighborhood stressors increase reliance on bonding ties, which may, in turn, increase (rather than reduce) stress in contexts of high disadvantage (Poortinga 2012). On the other hand, chronic neighborhood stress exposure erodes linking and bonding capital (Poortinga 2012). Collectively, these studies confirm that neighborhood factors determine levels of social capital, which, in turn, impair sleep health. The full mediation path remains scantily defined and untested on the topic of prostate cancer among middle- and old-age Black men.



Level 2: Intermediate – Social Capital as a Mediator

The stress process model outlines that distal stressors impact individual-level health through intermediate social factors, such as social resources. Social capital theory (Bourdieu 1986, Szreter & Woolcock 2004) further breaks social resources into bonding (strong, homogeneous relationships), bridging (weaker, cross-group ties), and linking (even weaker relationships with institutions). The proposed framework,

grounded in these theories, posits that the three forms of capital have distinct mediating effects on the relationship between neighborhood structural stressors and sleep health.

Proposition 2a (Bonding ties → Sleep): *Bonding ties exhibit a non-linear association with sleep health, where increased bonds promote restorative sleep through emotional support, but very high levels of these homogenous ties disrupt sleep through compassion stress, role obligations, and indirect trauma*. A recent study using nationally representative data from the National Survey of American Life Study showed that receiving emotional support (bonding capital) from family was associated with reduced likelihood of restless sleep (Nguyen et al. 2024). Williams and colleagues (2015) found gender and racial differences in the positive effects of close ties on sleep health. They discovered that emotional support was associated with 38 minutes longer sleep time among Black men only, not among women or other racial groups. However, Mitchel and LaGory (2002) confirmed that despite the known protective behavioral health outcomes of bonding ties, they show diminishing health returns in high-poverty, racially segregated, inner-city neighborhoods. The detrimental effects of high bonding in high-stress neighborhoods on sleep remain undertested in middle- and old-age Black men in the US.

Proposition 2b (Bridging connections → Sleep): *Bridging capital (including collective efficacy, neighborhood cohesion, and social participation) shows a linear, protective association with sleep health*. A recent cross-sectional study of 252 Black adults in Connecticut found that participants reporting poor sleep quality were significantly more likely to live in neighborhoods with low social cohesion (Nam et al. 2018). In terms of specific dimensions of sleep health, Echverria et al. (2008) reported positive associations between neighborhood social cohesion and sleep duration in a multi-ethnic study of Atherosclerosis, including Black men. Similar patterns have been documented in studies that collect nationally representative, real-time sleep health data in this population using actigraphy. For example, Chen and colleagues (2016) found that greater social participation (religious attendance and volunteering) was associated with fewer wake episodes and less sleep interruption. These studies provide clear evidence that strong bridging ties are associated with better sleep health.

Proposition 2c (Linking connections → Sleep): *Linking capital (i.e., trust in institutions, such as the police, healthcare systems, and local government) is positively associated with sleep health, mediated by heightened vigilance and hyperarousal.* Studies testing the association between linking capital and sleep are scarce. Most existing studies focus on the psychological consequences of structural discrimination and racism on sleep health (Hickens et al. 2013, Johnson et al. 2022). For example, racism-induced vigilance was associated with greater sleep difficulty (including trouble falling asleep, staying asleep, and early morning awakening) among Black Americans (Hickens et al. 2013). Relatedly, Richardson and team (2021) showed that violent crime was associated with greater actigraphy-measured wakefulness after sleep onset, but perceived police presence was not a significant mediator. This finding is especially interesting, as it underscores the need to implement institutionally driven changes to address neighborhood stressors rather than increase the presence of powerful authorities, such as the police.

Level 3: Proximal – From Sleep to Allostatic Load and Prostate Cancer

Allostatic load theory (Ballesio et al. 2026) outlines how chronic stress is biologically embedded through dysregulation of immune, metabolic, and neuroendocrine systems. Sleep is the primary restorative process that regulates these systems (McEwen & Karatsoreos 2015). Chronic poor sleep (irregular, brief, and low efficiency) elevates allostatic load, which in turn accelerates biological aging and increases prostate cancer risk.

Preposition 3 (Sleep → Allostatic load). *Sleep health (duration, efficiency, and regularity) is inversely associated with allostatic load. S*leep deprivation increases levels of circulating inflammatory markers, such as interleukin-6, impairs glucose regulation, elevates blood pressure, and alters cortisol rhythms; all dimensions of allostatic load (Ballesio et al. 2026, McEwen & Karatsoreos 2015). Precisely, experimental sleep deprivation for ≤ 4.5 hours per night over multiple nights significantly increased circulating IL-6 and CRP (Ballesio et al. 2026). Circadian irregularity is strongly linked to prostate cancer through mechanisms such as immune suppression and metabolic dysregulation (Clemente-Suarez et al. 2025). Unfortunately, middle- and old-age Black individuals face poorer sleep health even after adjusting for socioeconomic and behavioral factors (Chen et al. 2015). And the circadian irregularity (depicted through poor sleep) is strongly linked to prostate cancer through mechanisms such as immune suppression and metabolic dysregulation (Clemente-Suarez et al. 2025). Collectively, these studies confirm that poor sleep contributes to physiological wear and tear, increasing vulnerability to poor prostate cancer health.

Preposition 4 (Allostatic load → Prostate cancer). *Higher allostatic load predicts prostate cancer incidence and adverse prostate cancer outcomes (Gleason grade ≥8 and advanced stage, cancer-specific mortality).* A nationally representative cohort of almost 21000 men showed that Black men with high allostatic load had more than 4-fold increased risk of cancer death compared with Black men with lower loads (Li et al. 2024). Another study of prostate cancer patients showed that higher allostatic load was associated with increased odds of regional disease and worse overall cancer survival (Santaliz-Casiano et al. 2025). Zoomed-in analysis of results in the study revealed higher epinephrine levels (stress biomarker) and regional disease among Black men, and the higher epinephrine levels were significantly linked to cancer-specific mortality (Santaliz-Casiano et al. 2025). These representative studies show that allostatic load is a significant predictor of prostate cancer health and that stress biomarkers are particularly crucial factors for Black men.

Proposition 5 (Full serial cascade). *The full pathway from neighborhood disadvantage→ degraded social capital → impaired sleep → elevated allostatic load → increased prostate cancer risk is the central theoretical contribution of this framework.* There are no empirical studies to support the full cascade, but each relationship in the sequence is informed by recent evidence. For example, neighborhood factors such as murder rate, median income, and car theft index were among the strongest predictors of pre-diagnostic allostatic load among 4.258 prostate cancer patients, including 886 Black men (Stabellini et al. 2024). This study also showed that Black men faced 63% of the 19 social determinants of health assessed. Neighborhood adversity and systemic biases increase cancer risk among Black people (Nwakasi et al.

2024). Additionally, a large cohort study found that neighborhood deprivation was directly associated with 23% higher risk of short sleep (≤7 hours), a 38% higher risk of circadian disruption, poor sleep quality, and 8% higher risk of long sleep (≥ 9 hours; Barber et al. 2025). The intermediate role of social capital is supported by evidence showing that poor sleep quality among Black adults is significantly associated with lower neighborhood social cohesion (Nam et al. 2018), and higher social participation is associated with fewer wake bouts and less sleep disruption (Chen et al. 2016). Ballesio and colleagues (2026) show that less than 4.5 hours of sleep raises circulating IL-6 and CRP (key components of allostatic load), while Petrov et al. (2024) note that Black people experience poorer sleep outcomes even after adjusting for socioeconomic factors.

Discussion

Summary of Key Findings and Theoretical Contributions

This conceptual paper has developed a multilevel mechanistic framework linking neighborhood structural stressors to prostate cancer vulnerability in middle- and old-age Black men in the US. The proposed framework depicts a cascading relationship from neighborhood disadvantage to social capital (bonding, bridging, and linking) to sleep to allostatic load to prostate cancer risk. It also leaves room for a feedback loop across the factors. Overall, the framework proposes three distinct theoretical contributions.

First, it breaks down social capital into bonding, bridging, and linking types. While not theoretically innovative, this breakdown allows for nonlinear (bonding) and linear (bridging and linking) mediating pathways, a novel specificality previously absent from previous cancer disparities frameworks. *Second*, the framework proposes that linking capital is non-linear and may operate differently across institutional domains. This is an important nuance because, beyond non-linearity, it highlights that institutional influences are not monolithic. Instead, they are diverse and contingent on the history and context of the institution type, which may provide resources in one context while acting as a primary source of structural stress in another. *Third*, it positions sleep as a key proximal biological mechanism linking social exposures to allostatic load, shifting sleep from a general health behavior to a mechanistic pathway to prostate cancer vulnerability. This decision is supported by experimental evidence that sleep deprivation increases interleukin-6 and C-reactive protein (Ballesio et al. 2026), and data showing significant racial disparities in actigraphy-measured sleep, indicating poorer sleep health in Black people (Petrov et al. 2020).

Methodological and Research Implications

The primary goal of this implications section is to provide a general and replicable roadmap for empirical testing. Precise analytic decisions will be determined by the researchers seeking to test the proposed pathways in the proposed framework. The hypotheses proposed in the paper can be tested using existing nationally representative datasets in the US. Such data include the Jackson Heart Study, the

National Social Life, Health, and Aging Project, the Health and Retirement Study, the National Health and Nutrition Examination Survey, the Southern Community Cohort Study, and the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial. However, these tests must be conducted under the following methodological conditions.

Multilevel analyses with random intercepts must be used to test the hypotheses representing the relationships between social capital and sleep (H2a – H2c). This is a necessary approach because individuals are nested within community-level factors. Failure to account for nested relationships will lead to errors, including type I inflation (Finch 2022). The hypothesized non-linear influence of bonding ties (H2a) must be analyzed using procedures that account for both the quadratic effect of bonding capital and its cross-level interaction with neighborhood disadvantage. The quadratic consideration accounts for the assumed inverted U-shape, testing whether the turning point of the relationship shifts under high stress. These considerations acknowledge context-specific associations where bonding relationships may induce negative affect in high-stress environments (Umberson, Donnelly & Pollitt 2022).

For the mediation hypotheses (H3–H5), robust approaches, such as structural equation modeling (SEM), are appropriate for the serial mediation model (H5), which requires three or more waves of data to capture temporal precedence. SEM and comparable approaches are particularly suited for testing complex relationships, addressing complex sampling strategies, and testing theoretical assumptions (Kline 2023). Bootstrap estimates should also be considered to account for possible non-parametric features of large datasets (Yuan & Hayes 2021). Analytic assessments of the hypotheses must account for possible variability by age (e.g., middle vs. old age), neighborhood disadvantage, and socioeconomic position. Additionally, all constructs can be operationalized using validated measures and biomarkers described in Table 1. In terms of data types, H1 – H4 can be assessed using cross-sectional data to establish associations, but longitudinal data with at least 3 waves is necessary for H5. To handle missing data and minimize bias, modern techniques, such as Full Information Maximum Likelihood in SEM, or traditional approaches, like multiple imputation, can be employed (Lee & Shi 2021).

Practice and Intervention Implications

The framework proposes modifiable targets at each level of the cascade, outlining a roadmap for multi-level interventions. At the neighborhood level, context-based interventions can reduce violent crime, improve housing quality, increase neighborhood capital, and address economic struggles. For example, Richardson et al. (2021) showed that violent crime was associated with actigraphy-measured wakefulness after sleep onset in predominantly Black neighborhoods, supporting crime reduction as a sleep-promoting intervention. Evidence-based programs such as the Rapid Employment and Development Initiative (READI) Chicago, which used cognitive-behavioral interventions in combination with workforce employment, transitional jobs, and stipends, have shown effectiveness in reducing neighborhood gun violence in Black neighborhoods (Bhatt et al. 2023). Future studies must consider objective sleep health measures.

The proposed framework endorses interventions that develop bridging capital and linking capital at the community level. Community programs that connect middle- and old-age Black men to healthcare resources can compensate for eroded linking capital by increasing trust in medical institutions. However, trust-building initiatives to build linking capital must address medical mistrust by intentionally including community representatives on advisory boards and through culturally tailored outreach. As for bonding capital, men's peer support groups that provide structured support are effective for better behavioral and chronic health outcomes among Black men (Ewen et al. 2024, Lee et al. 2018). However, such approaches to improve sleep and prostate cancer vulnerability remain largely untested in this population. Combined approaches that build trust in health institutions while leveraging structured peer-support practices may be more effective in this area.

In terms of practice, culturally tailored sleep health interventions for Black men are a priority. Beyond the proposed social capital promotion strategies, mental health practitioners and sleep specialists can use evidence-based interventions (EBI) to treat sleep health in this population. However, EBI approaches such as the cognitive-behavioral therapy for insomnia (CBT-I) have demonstrated efficacy across diverse populations (Savin et al. 2023), but implementation in this population will require cultural and geographic adaptations to address the group-specific challenges identified here, e.g., hyperarousal (Zhou et al. 2022). Additionally, community-based sleep and cancer health education strategies can be delivered through community-trusted settings such as churches, local gyms, and barbershops. Using these settings has shown remarkable success for reducing the adverse effects and risk factors for other highly prevalent non-communicable diseases in Black men because of group buy-in and trust (Ewen et al. 2024, Lee et al. 2018).

Policy-level interventions can also use the proposed model to understand the connections among neighborhood capital, the effective influence of community organizations, and the need to implement targeted interventions to address PCa and other health burdens among Black men. For example, studies have shown that police presence in Black neighborhoods alone is not enough for better health outcomes, and improving the Black community's trust and perception of the police force through policy and programming is more effective for better health outcomes among Black men, e.g., reduced hypervigilance and improved perceptions of safety (Theall et al. 2022). Policies created by institutions such as the police should leverage the influence and effectiveness of community organizations to improve health outcomes by building trust (Pollack Potter et al. 2018). Ultimately, the most effective policy approach to reducing PCa vulnerability in middle and old-age Black men is multilayered and interconnected, as portrayed in the proposed model. Few interventions simultaneously address neighborhood conditions, social capital, and sleep as poignant pathways for reducing prostate cancer outcomes. The proposed framework offers a rationale for such trials, including device-measured sleep, allostatic load biomarkers, and prostate cancer outcomes.

Limitations

The pathways in the proposed framework should be interpreted with the following limitations in mind. First, the discussion overemphasizes a unidirectional cascade from neighborhood conditions to social capital to sleep to prostate cancer vulnerability. It must be noted that reverse paths are plausible. For example, poor sleep health can lead to social withdrawal, eroding social capital, and a cancer diagnosis can reduce social networking and disrupt sleep. The framework includes bidirectional arrows and a feedback loop to acknowledge bidirectionality. Longitudinal data with at least 3 time points must be used to establish temporal precedence between the constructs and to test causality. Second, the framework does not explicitly identify potential confounders, such as healthcare access or individual health behaviors, like diet and exercise. These factors are known to impact most of the discussed constructs, and scholars testing this framework must include covariates when data is available. Third, the framework focuses on PCa health in Black middle- and old-age individuals.

Hence, its applicability to other types of cancer and to other populations is unaddressed. While the core logic is portable, the interactions among the factors and the net influence of each pathway may differ across groups. Hence, researchers using this framework for other cancers and populations should account for potential context-specific variations. Finally, the literature contains a few contradicting results for some pathways. While this is expected, it offers windows for contrary perspectives on the proposed paths. The proposed framework does not claim empirical confirmation; its value lies in providing falsifiable hypotheses to explain PCa outcomes and in including overlooked but crucial mediating pathways through sleep and social capital.

Conclusions

Prostate cancer disparities affecting Black men in the United States persist despite decades of cross-sectoral interventions. Disparities, ecological, and behavioral health frameworks offer guidance for studying and addressing this problem, but they remain descriptive, individualistic, and incomprehensive in terms of pathway specifications. The framework presented here is a theoretically grounded and mechanistically sound addition that offers testable pathways from neighborhood structural stressors to prostate cancer vulnerability in middle- and old-age Black men. The framework's core novel propositions are that: (1) social capital (bonding, bridging, and linking) mediated the neighborhood stress → sleep relationship; (2) sleep is a key proximal biological process linking social and neighborhood exposures to biological health outcomes; and (3) the path from neighborhood structural stress to PCa vulnerability is serially mediated. Addressing the persistent PCa health disparities in middle- and old-age Black men must confront the structural, relational, and biological realities of their lives. This framework is a guide towards that effort.

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IMPULSE:
Performing Digital Heritage in Mixed Realities

By Adnan Hadziselimovic[*]

This paper discusses artistic research practices (Borgdorff 2010) through performing digital heritage, within the IMPULSE research project (Żegleń 2025), seeking ways digitised cultural heritage is experienced and interpreted through immersive virtual environments. The research project aims to utilize digital heritage assets in performances and exhibitions that engage audiences in innovative ways, employing artistic research methodologies to explore speculative interpretations of digital archives. It leverages emerging technologies and metaverses to expand the scope of heritage research (Azoulay 2019), addressing challenges such as accessibility, inclusivity, interoperability, and user-centered design. The paper examines the transformative role of artistic research as a methodology and explores its potential to foster emotional and cognitive engagement, highlighting how performing digital heritage can reshape the understanding and dissemination of cultural artifacts.

Keywords: *Artistic Research, Digital Heritage, Performing Heritage, Practice as Research, Extended Reality, Immersive Experiences.*

Introduction: Digitisation of Cultural Heritage

The digitisation of cultural heritage has become a cornerstone of contemporary efforts to preserve and disseminate historical and cultural artifacts. Defined broadly, digitisation refers to the process of converting physical objects, documents, or environments into digital formats for storage, analysis, and accessibility. This approach has its roots in archival practices, where preservation and safeguarding of tangible cultural heritage were prioritised. However, as Parry (2007) asserts, digitisation is not merely a technical process but also a cultural phenomenon that redefines how society interacts with its past. Initially, digitisation initiatives emphasised the creation of static digital archives designed to safeguard fragile or endangered materials. Such efforts were often guided by the principle of "preservation through representation," where digital surrogates served as proxies for physical artifacts (Hughes 2012). These archives have become important tools for research, education, and conservation, providing access to cultural heritage that might otherwise remain inaccessible due to geographic, economic, or political barriers (Wagner & de Clippele 2023). Programs such as the Europeana initiative illustrate the global scope of digitisation projects.

Despite these successes, the traditional focus on preservation and archival consistency has often limited the potential for dynamic and interactive engagement (Oh & Shi 2021) with digital heritage. Scholars like Cameron and Kenderdine

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(2007) have critiqued the static nature of many digital collections, arguing that the full potential of digitisation lies in its ability to create new contexts for interpretation and interaction. By incorporating immersive technologies such as Virtual Reality (VR) and Augmented Reality (AR), digitisation can transcend its original goals, enabling users to explore, manipulate, and experience cultural artifacts in ways that are multisensory and participatory (Champion 2011). The IMPULSE research project seeks to build upon these advances by leveraging emerging technologies to transform digitised cultural heritage into performative and interactive experiences. This approach aligns with broader shifts in the cultural heritage sector, where the focus is increasingly on engaging audiences in active and meaningful ways (Parry 2007).

Artistic Research Framework

Artistic research represents a paradigm shift in the ways knowledge is produced and disseminated. Defined as a practice-based methodology, artistic research integrates creative processes with scholarly inquiry, treating artistic practice as both a method and a form of knowledge production (Borgdorff 2006). This methodology challenges the traditional dichotomy between theory and practice, emphasizing the epistemic value of intuition, creativity, and subjectivity. Barrett & Bolt (2007) highlights the iterative nature of artistic research, where experimentation and reflection drive the generation of new insights. Similarly, Hannula et al. (2014) argue that artistic research is uniquely suited to addressing interdisciplinary questions, particularly those that resist quantification or linear analysis. In the context of the IMPULSE research project, artistic research will serve as a framework for reimagining digitised cultural heritage, providing tools for speculative interpretation and collaborative engagement. By positioning artistic practice as a form of inquiry, the IMPUSLE project aims to create new modes of interaction with cultural heritage. This approach is particularly relevant in the digital age, where the boundaries between creator and audience, physical and virtual, and material and immaterial are increasingly blurred (Leavy 2020).

Artistic research has gained prominence in recent years as a methodological approach that integrates creative practice with academic scholarship. According to Borgdorff (2006), artistic research is distinguished by its focus on the process of creation as a form of knowledge production (Fosnot 2013). This approach treats artistic practices as both the subject and the method of inquiry, allowing researchers to explore complex questions through experimentation, reflection, and interpretation. The iterative nature of artistic research makes it particularly well-suited to fields such as cultural heritage, where the relationship between material artifacts, historical narratives, and contemporary contexts is dynamic and multifaceted. Scholars such as Biggs and Karlsson (2010) and Leavy (2020) have emphasized the value of artistic research in generating new perspectives on cultural, social, and technological phenomena. Within the IMPULSE research project, artistic research will be employed to explore how digitised heritage assets can be transformed into performative and interactive experiences. By engaging artists, technologists, and cultural institutions in a

collaborative process, the project aims to create speculative interpretations of digital archives that challenge conventional modes of representation.

Collaboration is a cornerstone of artistic research, particularly when applied to digitised heritage. By bringing together diverse stakeholders, including artists, curators, technologists, and community members, the IMPULSE project fosters interdisciplinary dialogue and co-creation. This collaborative approach is essential for addressing the limitations of existing digitised heritage resources, such as non-standard formats, resolution constraints, and prescriptive discovery tools (Hughes 2012). Collaborative workshops provide a platform for participants to explore the creative potential of digital archives (Spieker 2017), identifying opportunities for reinterpretation and innovation. These sessions also serve as a forum for addressing practical challenges, such as integrating heritage assets into immersive environments or enhancing the discoverability of underrepresented collections.

Institutional databases often present significant challenges for creative practitioners. As Rinehart and Ippolito (2014) observe, these databases are typically designed with archival consistency in mind, prioritising standardised metadata and controlled vocabularies. While these features are essential for research and conservation, they can hinder exploratory and creative engagement. Non-standard file formats, low-resolution assets, and prescriptive discovery tools further complicate the use of institutional databases in artistic and immersive contexts. The IMPULSE project addresses these challenges by advocating for more flexible and user-centered approaches to design. The integration of visual search tools and thematic filters can enable users to navigate collections based on aesthetic or conceptual criteria, rather than rigid taxonomies (Champion 2011).

Artistic research methodologies (Schulze & Waltenspül 2025), including speculative prototyping and participatory design, can play a critical role in informing the development of these tools. Speculative prototyping involves the creation of experimental models or mock-ups that explore alternative ways of interacting with digital collections. By engaging artists, technologists, and cultural practitioners in the prototyping process, institutions can identify innovative functionalities that enhance user engagement and creativity (Hannula et al. 2014). Participatory design, on the other hand, emphasizes the active involvement of users in the design process. By hosting collaborative workshops and user studies, institutions can gain insights into how diverse stakeholders interact with digital collections and what functionalities they value most. A participatory workshop might reveal that educators prefer tools that enable storytelling and contextualisation, while artists prioritize tools that support aesthetic exploration and manipulation (Leavy 2020). These insights can guide the development of tools that are not only functional but also inspiring (Song & Evans 2024). IMPULSE advocates for greater standardisation and interoperability in the design. This includes adopting open file formats, and consistent metadata practices to ensure that digital assets are accessible and usable across a wide range of platforms and applications (Hughes 2012). By addressing these technical challenges, institutions can create collections that are not only robust and sustainable but also adaptable to the evolving needs of users. By leveraging artistic research methodologies and emerging technologies, IMPULSE seeks to create prototypes that inspire and empower users to engage with digitised heritage.

Artistic Interpretation of Digital Heritage Objects

IMPULSE aims to research ways in which digitised heritage objects are understood and experienced by reimagining them as dynamic components of immersive extended narratives. These extended narratives transform static digital artifacts into living, performative entities that connect audiences with the historical, cultural, and social dimensions of heritage in ways that are meaningful and engaging. This approach draws on speculative interpretation, a methodology rooted in artistic research (Arrigoni 2016), which encourages participants to explore digital archives (Bastian 2006, Ceuterick 2021, Eastwood 1994) through creative and transformative lenses (Haraway 2013, Haraway 2016, Jenkins 2006). Speculative interpretation challenges conventional approaches to heritage preservation by positioning artifacts not just as remnants of the past but as catalysts for imagination and innovation. A digitised artifact such as a medieval chalice might be interpreted not merely as an object of religious significance but as a symbol of craftsmanship, trade networks, and cultural exchange. Through immersive storytelling, users can engage with these multifaceted narratives, uncovering the layers of meaning embedded within the artifact. The emphasis on artistic interpretation aligns with the idea of performing digital heritage, where the focus shifts from static representation to dynamic engagement (Vaikla 2024). By incorporating speculative interpretation, IMPULSE seeks to reimagine digital heritage objects in ways that resonate with contemporary cultural and social contexts.

Interactivity is another key element for the artistic interpretation of digital heritage objects. Immersive environments allow users to actively explore and manipulate digital heritage objects, transforming the learning process into a dynamic and participatory experience. Users might engage in a virtual archaeology simulation, where they excavate artifacts, piece them together, and analyze their significance. This hands-on approach not only deepens their understanding of the artifacts but also encourages critical thinking and problem-solving. Interactive exploration (Bressan et al. 2017) also facilitates multidimensional understanding of digital heritage objects. Users could view a digitised artifact from multiple perspectives, examining its physical properties, its historical context, and its cultural significance. By integrating layers of information into the immersive environment, IMPULSE enables users to construct extended stories, enhancing cognitive engagement and creating emotional connections, making the learning experience more memorable (Jenkins 2006). Extended storytelling adds depth to the interaction, providing users with a vivid understanding of the digital artifact (Song & Evans 2024). Therefore, IMPULSE incorporates collaborative virtual spaces, where multiple users can interact with digitised heritage objects and with each other in real time. These spaces provide opportunities for collaborative extended storytelling, educational workshops, and co-creation. In heritage research, worldbuilding (Lee et al. 2021, Pearce 2011, Simoniti 2023) serves as a framework (von Osten 2011) for integrating disparate historical artifacts, narratives, and contexts into unified virtual environments. A digital reconstruction of an ancient temple could combine architectural models, textual records, and artistic representations to create a multisensory experience that captures the temple's aesthetic, cultural, and social dimensions. By contextualizing heritage objects within their broader historical settings, worldbuilding provides users with a

holistic understanding of the past, bridging the gap between isolated artifacts and their larger cultural narratives (Cameron & Kenderdine 2007).

Performance as a medium (Friberg et al. 2010) holds immense potential for reimagining and engaging with cultural heritage. It transcends traditional static methods of representation by incorporating dynamic, embodied practices (Bhattacharjee 2024) and interactive technologies to create multisensory experiences. The IMPULSE research project proposes to utilise performance as a transformative tool (Sedgwick 2003) to interpret and disseminate digitised heritage, fostering connections that are both emotionally resonant and intellectually stimulating (Dixon 2007). Through a combination of live, digital, and virtual performance modalities, the IMPULSE project aims to position cultural heritage not merely as an object of study but as a lived, shared experience.

Embodied practices (Heim et al. 2022), which emphasize the role of the body in perceiving and interacting with the world, are central to the IMPULSE project's approach to performing digital heritage. The theory of embodied cognition suggests that sensory and motor experiences are fundamental to human understanding (Johnson 1999). By incorporating physical movement, gestures, and sensory feedback into performances, the IMPULSE project aims to create experiences that resonate deeply with audiences on both cognitive and emotional levels.

Motion capture technology is being used to translate the movements of performers into digital avatars, bringing historical characters or narratives to life within virtual environments. This approach not only enhances the realism of the performance but also allows audiences to 'step into' the world of the heritage being presented. A user might, for example, navigate a virtual reconstruction of an ancient temple while interacting with digital avatars representing historical figures who narrate the temple's significance.

One of the most exciting aspects of performing digital heritage is its potential to transform audiences from passive spectators into active participants. Interactive performances invite audiences to engage directly with the content, whether by manipulating digital artifacts, influencing the narrative, or contributing their own interpretations. This participatory approach aligns with contemporary trends in cultural heritage, which emphasize inclusivity and co-creation (Cameron & Kenderdine 2007). An interactive performance might allow users to 'perform' historical roles, such as a scribe writing in an illuminated manuscript or a potter shaping clay on a virtual wheel. These embodied interactions not only deepen the audience's understanding of the heritage being presented but also create a sense of personal connection and ownership. The IMPULSE project will also emphasize the multisensory nature of performance, incorporating visual, auditory, and tactile elements to create holistic and immersive experiences. A performance centered on an ancient marketplace might combine digital reconstructions of the market's architecture with soundscapes of bustling crowds and the tactile sensation of handling virtual goods. By engaging multiple senses, the IMPULSE project aims to enhance memory retention and emotional resonance, making the heritage experience more impactful and memorable (Baker & Sicchio 2016, Champion 2011).

Critical Reflection: The Role of Performing Heritage for Institutions

The IMPULSE project represents a bold and innovative approach to the transformation of digitised cultural heritage, positioning it as a dynamic and participatory medium rather than a static repository of information. By integrating artistic research methodologies (Kaila et al. 2017) and leveraging immersive technologies, the IMPULSE project aims to reimagine cultural heritage as an interactive, performative, and inclusive domain. This vision aligns with contemporary trends in heritage research and practice, which increasingly emphasize engagement, co-creation, and accessibility as central principles for the digital age.

The IMPULSE project's emphasis on performance as a medium for interpreting and exhibiting digital heritage challenges traditional models of curation (Kolb 2024, Krasny 2016, Martinon 2013, Orr 2018) and dissemination. Through the integration of embodied practices and interactive technologies, performance becomes a tool for bringing cultural heritage to life in ways that are both emotionally resonant and intellectually stimulating (Dixon 2007). This approach enables heritage institutions to move beyond static displays, creating immersive environments that foster deeper connections between audiences and cultural memory. Despite its transformative potential, the implementation of performing digital heritage requires careful consideration of several critical challenges. By prioritizing user-centered design and inclusivity, the IMPULSE project seeks to ensure that its digital environments are equitable and accessible to all (Jones 2021).

The integration of artistic research methodologies (Stadon & Grasset 2011) further distinguishes the IMPULSE project as a pioneering initiative in the field of digital heritage. By treating creative practices as a form of inquiry, the IMPULSE project highlights the value of intuition, experimentation, and collaboration in addressing complex challenges and generating new insights. This approach not only enriches the IMPULSE project's outcomes but also establishes a precedent for interdisciplinary innovation in heritage research (Borgdorff 2006).

Performing digital heritage offers a powerful tool for heritage institutions to engage with contemporary audiences and redefine their roles in society. As custodians of cultural memory, institutions are tasked with not only preserving artifacts but also making them relevant and accessible to diverse publics. The performative approach proposed by the IMPULSE project provides a means of fulfilling this mandate, offering interactive (Oh & Shi 2021) and participatory experiences that resonate with the values and interests of today's audiences.

Looking ahead, the IMPULSE project envisions a future where performing digital heritage becomes a standard practice for cultural institutions, transforming the ways in which heritage is preserved, interpreted, and shared. This vision is not only ambitious but also achievable, as the rapid development of immersive technologies and artistic research methodologies continues to open new possibilities for innovation. By building on the insights and strategies outlined in the IMPULSE project, heritage institutions can create experiences (Clifford 1997) that are not only technologically advanced but also culturally and socially meaningful.

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Homeric Traditions in the Contexts of Ancient Greece and Modern Africa

By Alison Lee Naidoo[*]

The Homeric Hymn to Demeter is considered one of the most important literary texts to survive from antiquity, providing the basis for language and literary analysis for a plethora of other ancient sources. With its origins in Oral Tradition, the Hymn looks closely at the Fifth Century Attic coming-of-age, marriage, and funerary rites involving women and girls in Ancient Greece. In a similar nature, Traditional African customs are also steeped in rich Oral Tradition, and customs associated with girlhood and womanhood share many traits with Ancient Greek customs. Taking into consideration that both cultures are Patriarchal Societies contingent on strong Matriarchal values, this paper will look at the similarities in the customs and cultures of Attic and African marriage and funerary rites, discussing their origins and examining any connections between the two cultures be it ancient or modern.This paper will also examine the importance of oral based traditions in community-based cultures and how this has been influenced by western traditions in how these traditions are received in society today.

While Ancient Greek culture appears in many corners of the world, due to both the nature of expansion of ancient territories and domains, as well as the adoption of ancient ideas and ideals into modern society, the similarities between ancient Greek customs and African traditional customs are ones not commonly explored except for Lambert (1990), Kirby-Hirst (2005), and Mackenzie (2010). That being said, the characteristics, in particular between the impressions of girlhood and womanhood within systems of patriarchy that are reliant on women, marriage, and funerary rites and customs, are strikingly similar. For the purposes of this paper, analyses will be made based on observations made from textual and literary references in the *Homeric Hymn to Demeter*. The *Hymn* will be discussed using the translation into English by Helene P. Foley.

The *Homeric Hymn to Demeter* is considered one of the most significant pieces of literature to survive from antiquity. Its centredness on female characters and experiences of women in the ancient world is uncommon for the time. Yet its main theme, loss and grief, likely would have resonated deeply with the people of ancient Greece, in particular with Mothers and Daughters. The theme of grief and loss present in the *Hymn* is so profound that it still evokes a deep sense of emotion in readers of the *Hymn* in modern times.

An important aspect that is present, albeit implicitly, in the narrative of the *Homeric Hymn to Demeter*, is the idea of women and the oikos, as players within and out of the familial household. As the principle of the oikos was a key principle of Attic

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Greek socio-economic society, it would be fair to assume this principle, along with other patriarchal standards or the time, would be applied to the gods.

The concept of the oikos has evolved to take on different meanings within the development of aspects of the household. In William Johnson Everett's OIKOS: Convergence in Business Ethics, Everett describes the ancient Greek oikos as a convergence of economics, family, and religion, particularly from the perspective of an agricultural unit, which is an apt description of the traditionally agrarian society of archaic Greece. Everett goes further to clarify that the oikos in ancient Greece "embraced not only a house, but also a lineage, a heart, ancestral claims, and the land of the fathers" (Everett 1986, 318).

While Ancient Greek society heavily favoured men, being a patriarchal society, women still played an important role in keeping the balance in society. While the main male figure of the house, the husband and/or father, was the symbolic head of the household by providing financially for his family, it was the female members of said household who actually ran the house. Women were responsible for fetching water, ensuring the upkeep of the inner house, preparing food, and ensuring the place remained habitable for the family. While the male head of the household was responsible for financial prosperity of the family, the mother of the household would be responsible for the symbolic prosperity of the family, ensuring that she kept her household well. Additionally, the woman would be responsible for bearing children for her husband, particularly male children, who could inherit their father's oikos or estate as his sons and heirs.

In *The Oikos in Athenian Law*, Douglas MacDowell explains that in the context of Athenian laws, "oikos means 'property' or 'house'. However, prior the fifth century before common era, in an Attic context, oikos could also mean family or the items belonging to the household. Due to the transactional nature of the oikos as an object or having object value, there were rights and duties of relative in the out of the oikos in terms of inheritance. MacDowell states: "When a man died, his property normally passed to his children of grandchildren, or to an adopted son. If none of these existed, the nearest relatives could claim."

An important omission from this explanation is the absolute right of any women relatives to inherit. However, members of the oikos had a much better chance at successfully inheriting the deceased's estate than members of the family that were outside the oikos. MacDowell further explains an exception to this rule, stating: "A few exceptions are conceivable: for example, the deceased's daughter's son, who would be in a different oikos, would take precedence over the deceased's unmarried sister, who would be in the same oikos."

The system of inheritance of the oikos seemed to be aimed at preserving the family legacy, financially and otherwise, down the patriarchal line as much as possible. The burden, not only of the inheritance of the physical object of the oikos, but also of the symbolic undertaking of the head of the oikos left behind by the deceased was not considered a female one, as limitations of female participation in society would have severely limited a woman's ability to head an oikos without any man present (MacDowell, 1989).

How does all of this apply to the *Homeric Hymn to Demeter*?

When Persephone is taken to the Underworld by Hades, an irreversible shift takes place. Persephone transitions from the oikos of her parents to the oikos of her husband, thus shifting from child to woman, thrust into the position of maintaining her own oikos on her husband's behalf. Similarly, but in a physical manner, Persephone transitions to womanhood with the loss of her virginity, no longer a child or maiden, but now the property of the one responsible for her deflowering. Although the Hymn does not explicitly describe the event, in lines 342-344 which states: τέτμε δὲ τόν γε ἄνακτα δόμων ἔντοσθεν ἐόντα, / ἥμενον ἐν λεχέεσσι σὺν αἰδοίῃ παρακοίτι / πόλλ᾽ ἀεκαζομένῃ μητρὸς πόθῳ, her loss of virginity is very heavily implied (considering she is depicted as in a bed, with Hades beside her - ἐν λεχέεσσι σὺν αἰδοίῃ). Along with this loss of virginity comes a shift in Persephone's agency. While Bruce Lincoln, in *The Rape of Persephone: A Greek Scenario of Women's Initiation*, is of the opinion that "it thus appears that prior to her stay with Hades, Persephone had no proper name, being known only as her status: Kore, 'the maiden'" (Lincoln 1979, 230), she is no longer her own person but rather belonging to her husband. This point is further emphasized as the above-mentioned lines describe her being in bed with Hades against her will - πόλλ᾽ ἀεκαζομένῃ. This is despite the fact that "a proper name is only bestowed when she [Persephone] has been initiated, become an adult, and lost her maiden status" (Lincoln 1979, 230).

Although the Greek gods and goddess were not subject to precisely the same standards imposed upon mortals, such as monogamous marriage, Demeter's union with Zeus in which Persephone was produced presents a sort of oikos in a sense. Father, mother, and child all reside in one place, Mount Olympus, and though Zeus is an absent father at best, Demeter is no doubt a very present mother. If the principle of the oikos is applied to the family unit of Zeus, Demeter, and Persephone, it stands to reason that other principles that centre the oikos then also apply.

Subsequently, once Persephone comes of age, she should not remain in her father's oikos but rather, should be married to another man in order to establish their own oikos together under her husband's name and control.

As the father of Persephone, in an ancient context, Zeus had a right to pick out a suitor for his daughter to wed (Rehm 1994: 11). He did not need permission from Demeter of Persephone to do so. As a maiden, it would be necessary for Persephone to be married and to leave the oikos of her parents. From the perspective of Zeus, pairing Persephone with Hades as her suitor serves him in a multitude of ways. Hades hold honour and respect as being one of the six original Olympian gods and so is a suitable candidate for Persephone as the daughter of the king of the gods. Hades also has dominion over his own domain and while it is isolated from the rest of the world, it is still a very important domain as part of the life and death cycle in Greek culture. A third reason for this pairing links to the issue of inheritance of the oikos. Hades and Zeus are already linked to each other as brothers. Therefore, by uniting Persephone and Hades in marriage, Zeus ensures that his inheritor is someone worthy to continue the legacy of his oikos as Hades will now also be linked to him as his son-in-law.

Once Persephone completes her union with Hades by marrying him, she will move from being a member of her father Zeus' oikos to maintaining the oikos of her husband. This role change is symbolic of the growing up or coming-of-age of young girls in ancient Greek society: once they are old enough to be married (once they have

started menstruating and are therefore able to bear children), they cannot continue residing in the oikos of their fathers but must contribute to society by contributing to the establishment of the oikos of their husbands. Male children, who would be the heirs of their fathers, remain in the oikos of their fathers as inheritors and successors to the family line, while female children are used as a commodity to enhance the oikos of their fathers.

The *Homeric Hymn to Demeter*, in particular, serves as a stark reminder of the place of women in ancient Greek society. The narrative presents a sort of double-edged sword situation in that the oikos requires the presence of women to function, but also that they would be treated as incidentals of the household due to significant roles of leadership in the household being occupied by men. Each significant stage in a woman's life in ancient Greece revolves around the oikos: birth, marriage, and death. Yet at each of these stages, the oikos, and the agency of the woman, is never her own.

In Rush Rehm's *Marriage to Death: The Conflation of Wedding and Funeral Rituals in Greek Tragedy*, Rehm describes fifth century Attic Marriage by the acts of ἐγγύη (pledge), ἔκδοσις (dowry-exchanging), and γάμος (wedding). For a traditional Attic marriage to take place, all three of these conditions needed to be met. The ἐγγύη was a betrothal between the two parties organised by the legal guardians of the couple. Because the bride was not considered to have legal agency, her participation in the betrothal was unnecessary and the agreement for betrothal would usually take place between the couple's fathers. However, in the case where the groom was of the age of majority, as he had legal agency, he would be able to represent himself in his own marriage negotiations (Rehm, 1994: 11). The ἔκδοσις, in essence, was the transferring of the bride from her father's house to her new marriage house where it was her responsibility to maintain the oikos (household) and bear children, specifically a male heir. An important aspect of the transferring of the bride from her father's house to the groom's house would be the when, after the wedding banquet, the groom would lead the bride to her new home, led by a procession of torch bearers, most specifically including the bride's mother, who would play music and sing songs (Rehm 1994, 14). This particular act suggests that despite that marriage itself more often than not being transactional, it was still a celebrated act in which the bride's family's involvement intimates a tacit agreement to or approval of the marriage. In addition to this, the groom's parents were also involved in the transfer of the wedding couple into their new home. The groom's parents would meet the newlyweds at the threshold to their home, but it was the role of the groom's mother to welcome the couple into the home itself, by bearing the wedding torch and leading them inside and to the hearth to take part in further marriage customs. An important aspect of the incorporation of the bride into the marriage home was the eating of fruit by the bride, a quince or an apple, symbolising "a sympathetic guarantee of fertility, a demonstration that the bride's livelihood now comes from her husband, a way or marking her initiation into the new oikos, an indication of the impending loss of her virginity, and (for the non-symbolists) a practical means of sexual arousal" (Rehm 1994, 17). This was followed by the physical consummation of the marriage. While there were some variations due to social, political, and economic contexts, the aforementioned proceedings were important aspects of a Greek marriage and were largely standardised in the Athenian marriage context.

Rehm, in providing reason for marriage unions, states, "The primary purpose of marriage, then, was to recreate the oikos under control of the husband, to guarantee the continuity of family property (land, house, and retainers) by providing heirs, and to secure the continued religious observances owed to its dead members" (Rehm 1994, 12). This suggests that traditional Attic marriage in the fifth century was almost exclusively transactional, with the transaction being between the two fathers, or the father and the groom. The bride's role in this transaction was not as a negotiating party, but rather as an object being negotiated over. The implication then is that the bride would likely not be able to object to the marriage or to reject the groom but would have had to proceed with the marriage in order to satisfy the terms of the marriage contract.

In order for the marriage contract to be completed, consummation of the marriage was required, that is the physical unification of the bride and groom through sexual intercourse. Rehm describes the act as being "unpleasant for the virgin wife" (Rehm 1994, 17) but notes that "intercourse marked the τέλος (*telos*, 'end' or 'goal') in the transferral of the bride to her husband, and the consummated marriage was referred to as a γάμος, 'a pairing'" (Rehm 1994, 17). In preparation for the consummation, Rehm explains that the bride would remove her veil "in the ἀνακαλυπτήρια", if she had not already done so, to present herself to her husband. Rehm draws similarities of the bride's unveiling to the revelations associated with the Eleusinian Mysteries in which knowledge was revealed to the initiates through the rites performed and that this revelation, the ἐποπτεία, was the moment of climax in the initiation, but could also be viewed as the climactic moment of the newly married couple's wedding night. Interestingly, Rehm points out that "unveiling may have been the single act in the wedding that the bride performed herself, signifying her formal consent (if nothing more) to the marriage" (Rehm 1994, 17). Although the permission, at this stage, may be nothing more than symbolic, the imagery conjured up by the woman unveiling herself as permission to her groom is poignant as it suggests that, even if just for that moment, the woman has an ounce of power in completing the unveiling herself, and that a forced unveiling (the husband removing the wife's veil himself) would not carry the same weight in the marriage ritual.

While the consummation of the marriage by the bride and groom was a private part of the marriage ceremony to bring the marriage to its end goal, this did not mean that those who were already in attendance would leave but rather participated in their own rituals during this time. The wedding party, those who had accompanied the marriage procession both on the sides of the groom and bride, would participate in ritual chanting and singing: the singing of epithalamia, which was the singing of songs outside the bed chamber (the thalamus or marriage chamber) of the married couple who were in the process of consummating their marriage. Rehm describes the practice thusly: "The men and women took the side of their respective friend within the house, celebrating with mockery, ribaldry, and possibly dancing as well" (Rehm 1994, 17). The epithalamia continued to the next morning, in which it was used to wake the newlywed couple, and another ceremony called the ἐπαυλία, in which the newly married couple received friends and guests who brought gifts to the marriage house. This is followed by a final wedding banquet hosted by the family of the groom. From this description, it is clear that both the Athenian wedding and the marriage itself is a

social and familial affair, involving members of the family and community in rituals and ceremonies to ensure that the marriage rites are correctly followed and adhered to, likely to ensure the validity and legitimacy of the marriage. Even the practice of consummation, a private affair in modern society, is subject to an audience and these practices set the norm for a wedding being a communal celebration and not a private affair.

Rehm observes that once this final banquet has taken place, "the couple lived together in marriage, συνοίκειν" and that "the relationship involved keeping and sharing an oikos" (Rehm 1994, 18). Rehm emphasises the object of Athenian marriage by quoting Cynthia B. Patterson who states that the aim of an Athenian marriage was "a relationship between a man and a woman which had the primary goal of producing children and maintaining the identity of the oikos unit (the household) within the social and political community" (Rehm 1994, 18).

Nevertheless, the object of Attic marriage in the fifth century vastly differs from the modern idea of nuptials: the ancient objective was to ensure the continuation of the oikos where the women's role was to provide male heirs through childbirth and to run the household according to her husband's specifications as opposed to modern marriage conventions which allows for a more equal footing of the husband and wife and which the roles of the men and women are based on socio-political context instead of more archaic values. Furthermore, the definition of household in a modern context differs from the ancient Greek tradition as, while it is becoming more acceptable for either men or women to head a household, it is not uncommon for the man or husband to still be considered the head of the household, describing him as the breadwinner of the family rather than the person in charge of looking after the house.

Similarly, in African Customary Marriages, that is marriages entered into through customary law but provisioned for by civil law, marriage negotiations are primarily a family activity, with the main familial patriarchs acting as chief negotiators. In IP Maithufi and JC Bekker's *The Recognition of the Customary Marriages Act of 1998 and its Impact on Family Law in South Africa*, it is explained that ilobolo, defined as "Property or cash in kind,... which a husband or head of his family undertakes to give to the head of the prospective wife's family in consideration of a customary marriage" (The Recognition of Customary Marriages Act of 1998), is not a mandatory requirement for the celebration of a customary marriage. However, it would be up to both parties to negotiate this requirement in accordance with the requirements pf their application of customary law (Maithufi and Bekker 2002, 186).

It is clear then, that in a similar vein to ancient Greek marriages, African customary marriages, hold a sense of economy and monetary gain, particular for the family of the woman who would be the ones receiving the gift or dowry for the marriage.

A notable likeness between ancient Greek traditions and African customary traditions comes after the marriage, with the establishment of the household and particularly, the responsibilities of the women within that household to their community and society as a whole.

Due to the nature of Colonial and Apartheid era laws in South Africa, African Customary Marriages were not recognised prior to democracy in South Africa. Subsequently, so-called "alternate" provisions were made. The Black Administration Act of 1927 state that a customary marriage creates a "house" and defines a "house"

as "…the family, property, rights, and status, which commence with, attach to, and arise out of the customary marriage of each Black Woman".

The "house" in this case, is comparable to the ancient Greek oikos. In the case of polygamous marriage, a man who had multiple wives created a "house" representing a household with each of his wives. While he was the head of each household, it would be left to the wife to run that household satisfactorily. This mirrors the idea of the oikos which was headed by the man but managed by the women of the household. Similarly, in traditional African custom, other women, such as daughters, within the "house" would contribute to its administering in the form of household chores.

Additionally, and similarly to principles of the oikos during Solon's Reforms, in African custom: the man who had more than one wife and subsequently "houses", while having great administrative freedom over them, could not use one house to either the benefit or detriment to another house. Simply put, "one house was not supposed to be enriched at the expense of another" (Maithufi and Bekker 2002, 188).

Another key similarity between an Ancient Greek cultural practice and African customary practices, is the practice of ritual abduction for marriage. While it is not explicitly mentioned as a custom or rite in the more conventional Ancient Greek tradition as described by Rehm, literary evidence such as the abduction of Persephone by Hades in the *Homeric Hymn* imply, at the very least, the existence of such a practice.

In Nyasha Karimakwenda's *Deconstructing Characterizations of Rape, Marriage, and Custom in South Africa*, Karimakwenda explains that "in the Nguni languages of isiXhosa and isiZulu, the literal meaning of 'ukuthwala' is to carry away. But it also refers to the customary practice of abducting or carrying off a girl or woman for purposes of precipitating a marriage. Variations of abduction marriage are found across South Africa amongst tshiVenda, siSwati, xiTsonga, sePedi and isiNdebele speaking groups, among others, each cultural grouping having its own terms and characteristics" (Karimakwenda 2020, 765). From this, it is clear that there is no singular definition for ritual abduction in a South African context, and that the cultural situations surrounding the practice itself will inform how the abduction will take place.

What should be noted, is that the practice of "ukuthwala" has many instances in which it has been used as a tool to perpetrate gender-based violence, with Karimakwenda noting that "There were disturbing accounts from rural areas of young girls (many of them impoverished and vulnerable orphans) in the provinces Eastern Cape and KwaZulu-Natal who were forced into customary marriages with older men through the acts of kidnapping, assault, and rape. The sources put forward that these acts were being done under the guise of the almost extinct but now revived customary practice of ukuthwala, although in a distorted form" (Karimakwenda 2020, 764).

One of the most significant reasons for a man and woman to marry in ancient Athenian society, as mentioned above, was to ensure the continuation of the oikos, not only for a male heir to create his own branch of household, but also to continue his family line and oikos. Naturally, when considering linage and inheritance in terms of the oikos, the matter of testament on the case of death arises. By getting married, and subsequently having children, a man ensured that within the oikos, upon his death, religious funerary rites and rituals would be practiced and observed for any deceased members of the oikos. For the ancient Greeks, funerary rites would be as important, if not more so, than marriages rites. The marriages rites could almost be seen as a means

to an end, to ensure the correct observances in death, so that the deceased received the proper honours in the afterlife.

Much like the marriage rituals, Attic funerals were not a solitary affair but again rather a communal event. Rehm explains that "the connection between wedding and funeral rites was encoded in the term κῆδος, a word-group that refers both to a 'κήδεια' (κηδεστής were 'in-laws') and to the 'funeral ritual' (Rehm 1994, 22). Rehm goes further to explain that it is possible this connection exists as a relative by marriage would then be obligated to the deceased in performing familial funerary rites, κήδεια, as a member of the new oikos. Additionally, Rehm makes it clear that the women of the household were again at the forefront of the funerary preparations and rites, as they were when it came to the marriage rites. Rehm describes their involvement and preparation, as well as the funerary process itself, as follows:

> "As they did at weddings, women played the most significant roles in mourning rituals, including washing, anointing, dressing, crowning, and covering the body after adorning it with flowers. Prepared in this manner, the corpse was 'laid out' at the πρόσθεσις) on a 'bed' or 'couch', κλῖνη, probably in the inner courtyard of the house. There it remained on view for two days, long enough – in an age of rudimentary medicine – to ensure that the person was really dead" (Rehm 1994, 22).

From these details provided by Rehm, it is clear that women did not only play a significant role in mourning rituals, but an indispensable one. It is implied that without the group of women mourners, certain rites and rituals would not be able to be competed, and, subsequently, the deceased would not be able to have a proper funeral. In following testamentary laws for inheritance at that time, the family that would inherit was the one who had possession of the body. This is due to the belief that only closest family members would tend to a deceased's corpse in, what Rehm describes as, "such an intimate way" (Rehm 1994, 22). The implication from this, is that the women of the oikos who would end up being the principal mourners and main attendants to the deceased were not just an integral part of the oikos, as they served roles both in life and death that were integral parts of Attic society, but that they also played important roles in the lives of the members of the oikos themselves.

Much like the epithalamia for the wedding, funerary rites came with their own selection of singing and chants performed by the mourners. Rehm describes the proceedings, stating that "mourners dress in black and cut their hair short when they paid their respects to the dead. During these visits, the women of the family sang and wailed dirges" (Rehm 1994, 22).

There is also an indication, from scenes on vases and funerary plaques, that the women mourners would "stand over the corpse at the top end of the couch, where they beat their head or breasts, lacerate their cheeks, or tear their hair" (Rehm 1994, 22). All these activities were the conventional and expected behaviour of the female mourners, particularly and especially of those women who were part of the same oikos as the deceased.

In Hundzukani P. Khosa-Nkatini's *Patriarchal Nature of Mourning from an African Persepective*, Khosa-Nkatini explains that mourning in African traditions differ substantially from Western traditions, particularly in the status of the widow of the deceased. Khosa-Nkatini explains: "Vows in the western culture state 'until death

do us part', but this is not the case in the African traditions. A widow is still considered married even after the death of her husband…It is important to note that most African traditions surrounding death are stricter for women than for men" (Khosa-Nkatini 2022, 1).

Similarly to the funerary traditions found in archaic Greece, "In the African culture, a widow's hair is frequently shaved off as a sign of her grieving. Several people claim that this is done to make the widow appear unappealing to men. However, others contend that a widow's decision to shave her hair is an indication of how deeply she is mourning her late spouse…The oldest ladies in the community wash and dry the deceased three times. This demonstrates how tightly connected all rites are in African civilisation after death with the women (Khosa-Nkatini 2022, 3).

Once again, it is clear that traditions found in ancient Greek funerary practices very closely resemble those found in African traditions and in fact, the relationship and similarity between the ancient Greek traditions and the African traditions is far stronger than that of ancient Greek customs and Western traditions, despite ancient Greek culture being considered a fundamental aspect influence on Western society.

Another point on which ancient Greek society and African society seem to concur is that of old women and their place in society.

Both Jan Bremmer's The Old Women of Ancient Greece and Louise Pratt in The Old Women of Ancient Greece and the *Homeric Hymn to Demeter*, acknowledge that old women in ancient Greece certainly appeared to be marginalised for having passed their prime, with Bremmer going so far as to say, "in ancient Greece old women constituted a marginal category, which was loathed and feared by the males" (Bremmer 1987, 204). On the other hand, Pratt goes onto correctly note that the *Homeric Hymn* itself does not fall under this category as the *Hymn* tends to describe old women, particularly Doso, in a much more positive light than other ancient literature. The cycle of women and fertility becomes complicated in this regard as older women who had past the stage of menopause did not have the same social standing or social value as younger women who were considered of age to still bear children, thus making them more valuable members of society. Yet, both young and old women's values were placed on their ability to be fertile and bear children, and, in the case of older women, such as Doso who was acting as a wetnurse, their dues to society in terms of childbearing could be considered already paid.

In Kate Rice's *Ukuthwala in Rural South Africa: Abduction Marriage as a Site of Negotiation about Gender, Rights and Generational Authority Among the Xhosa*, Rice explains the significance of older women in African society that reflects the similarities observed in ancient Greek culture. Rice explains: "While older men command the greatest authority, older women often command considerably more authority and respect than younger men. For instance, while older men are always fed first at events such as weddings and funerals, older women are fed before younger men. Young women are fed after the men, but before children of either sex. Furthermore, at community meetings the vast majority of the talking is done by older men, but older women will often attend, and will sometimes voice their opinions. Young men, however, are very rarely given the opportunity to speak" (Rice 2014, 386).

While this approach does not exactly correspond to ancient Greek practises, where rules applied differently more to class groups before gender groups, there are echoes of familiarity in the approach to society and societal function. Power is given to those with the wisdom to assert it correctly, and this is seen in both African cultures, as well as ancient Greek traditions as illustrated by the *Homeric Hymn to Demeter*.

Despite the *Homeric Hymn to Demeter* being a cornerstone of Western Literature, observations from the *Hymn* itself align more noticeably with cultures outside of the Western sphere. While the similarities between ancient Greek cultures and African traditional cultures discussed here are by no means exhaustive, they are ones that are significantly apparent. As more African scholarship is brought to the fore, the similarities between the two cultures become clear and demonstrate that despite the fact that these two cultures seem vastly different from a theoretical point of view, due to matters such as geographical location, historical eras, issues of race, and differing cultures, what remains palpable is the similarity between two groups of people with the same approach to the growth and preservation of community based society.

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