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Master's Thesis

**Traumatic Exposure, Suicidal Behavior, and Social Capital in  
Conflict-Affected Communities in Colombia**

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# Abstract

**Introduction:** Given the global rise in suicides and the significant impact of potentially traumatic events (PTEs) on suicidal behavior, this research explores an overlooked facet of this issue. While previous research has linked trauma and suicide, acknowledging social capital's potential role, a significant gap remains in understanding these dynamics within armed conflicts in Latin America. This study aims to bridge this gap by exploring the interplay between trauma, social capital, and suicide in conflict-affected Colombian communities.

**Methods:** This is a cross-sectional quantitative study, part of the MHPCC project. It was carried out in partnership with The Danish Institute Against Torture (DIGNITY), The Ministry of Health and Social Protection in Colombia, and Universidad de Externado, and took place in 15 municipalities affected by conflict in Colombia. The data was collected through structured interviews, employing: the DSM-5 Life Events Checklist (LEC-5), the Okasha Suicidality Scale, and the Adapted Social Capital Assessment Tool (SASCAT). Descriptive and statistical analysis were performed.

**Results:** The study involved 4480 participants across Bolívar, Cauca, Meta, Putumayo and Tolima. Females comprised 73,6% (N=3269), males 26.2% (N=1171), with a mean age of 45 years. Suicidal behavior was evident in 4,5% (N=203) of participants. Exposure to PTEs: Noninterpersonal 47,1% (N=2108) of the population, interpersonal 15,1% (N=677), no exposure to any PTEs 37,8% (N=1695). Social capital: 54.3% (N=2433) low, 45.7% (N=2047) high. Cognitive social capital prevailed, with 93.7% (N=4198) recognizing at least one item. Exposure to noninterpersonal PTEs significantly increased the risk of suicidal behavior (OR=3.377, CI 95% 2.093-5.622,  $p \leq 0.001$ ). Interpersonal PTEs magnified this risk even further when compared to noninterpersonal ones (OR=11.372, CI 95% 7.006-19.053,  $p \leq 0.0001$ ). The interaction between noninterpersonal PTEs and social capital revealed an OR of 0.82 (95% CI: 0.66-1.06,  $p \geq 0.05$ ), and between interpersonal PTEs and social capital, the calculated odds ratio was 0.87 (95% CI: 0.71-1.11,  $p \geq 0.05$ ).

**Conclusions:** This study significantly advances the grasp of trauma's role in suicidal behavior and the importance of social capital in Colombian communities. It adds vital insights to Latin American contexts and emphasizes the pressing need for comprehensive mental health approaches.

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## List of abbreviations and acronyms

CDC	Centers for Disease Control and Prevention
DIGNITY	The Danish Institute Against Torture
FCV	Fragile, conflict-affected and vulnerable
ICD-11	WHO's International Classification of Diseases
ISCED-11	International Standard Classification of Education
LEC-5	DSM-5 Life Events Checklist
LICs	Low-income countries
MHPCC	Mental Health in Post-Conflict Colombia
MICs	Middle-income countries
ONS	Office for National Statistics
PTE	Potentially traumatic events
PTSD	Post-traumatic stress disorder
SASCAT	Short Version of the Adapted Social Capital Assessment Tool
SBD	Suicidal Behavior Disorder
WHO	World Health Organization
YLL	Years of life lost

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# I. Introduction

Suicide is a public health concern around the world (1). The mortality rate associated with this phenomenon ranks as the fourth highest among individuals between the ages of 15 and 29 (2). However, existing research indicates that non-fatal suicidal behaviors exhibit a greater prevalence in comparison to completed suicides (3). Approximately 9,2% of individuals worldwide report engaging in suicide-related behavior, while deaths resulting from suicide account for approximately 1,3% of all deaths.(4)

Numerous factors have been identified as contributing to the occurrence of suicidal behavior, and among them is the exposure to potentially traumatic events (PTEs), which has been documented in around 70% to 90% of individuals globally (5,6). The psychological impact of trauma may trigger emotions of hopelessness and isolation, making individuals vulnerable to contemplating death as the only solution (7). However, social capital may serve as a potential buffer against the adverse effects of trauma on suicidal behavior, as research has found that relationships and social networks can be beneficial to one's mental health and overall well-being (8).

While the prevalence of PTEs is observed globally, individuals living in fragile, conflict-affected, and vulnerable (FCV) settings experience increased vulnerability to these occurrences (9). This vulnerability is further exacerbated by the persistent stress and trauma associated with living in such environments, and the limited access to appropriate assistance resources, leading to a decline in their mental well-being and an increased likelihood of engaging in suicidal behavior (10). In the particular context of armed conflict, this situation is an increased problem, as individuals who have been exposed to conflict-related events exhibit a higher risk of mental disorders, persisting for up to a decade following the occurrence of said events (11).

Colombia is a country in Latin America that has been affected by conflict for decades and was once considered to have the world's longest active civil war (12). This conflict culminated in the signing of an agreement for peace in 2016 between the Colombian government and the Revolutionary Armed Forces of Colombia (FARC-EP) guerrilla group (13). Nevertheless, violence is still present in the country and has resulted in a significant



decline in the population's quality of life as well as their physical and mental well-being (14). Currently, Colombia is confronted with a pressing mental health challenge among its people, as indicated by the most recent National Mental Health Survey (15). The study reveals 45.9% of individuals who were exposed to armed conflict reported experiencing some form of psychological trauma as a direct result of the event. In addition, it has been disclosed that there has been a 7.8% rise in suicide rates between the years 2020 and 2021(16).

Past studies have connected trauma with suicidal behavior within the context of FCV (17–19). However, these studies have exhibited limitations in terms of population, primarily focusing on individuals who are refugees or asylum seekers originating from the Middle East and North Africa. There is a notable absence from studies on individuals living in Latin America. Therefore, the primary objective of this study is to address the existing knowledge gap in the academic literature by offering valuable insights into the occurrence of trauma, suicidal behavior, and social capital within communities affected by the armed conflict in Colombia. Furthermore, the assessment of trauma frequently relies on the factor of cumulative trauma, which takes into account the number of traumatic occurrences experienced (20,21), or on the concept of secondary trauma, which is influenced by an individual's profession (22). The specific characteristics of the event remains unclear. This study examines trauma as a distinct group of experiences, specifically focusing on its differentiation into interpersonal and non-interpersonal events. The existing collection of evidence associated with trauma categories is limited in its examination of interpersonal trauma. Specifically, it predominantly focuses on childhood trauma (23) and adult gender-based violence (17), failing to include other forms of interpersonal PTEs. Also, these studies often fail to contextualize the trauma within armed-conflict settings. Moreover, limited availability of research has been undertaken to examine the potential influence of social capital on these connections, particularly in the context of armed conflict. Therefore, this study seeks to fill a gap in the existing literature by looking into the effect of social capital on the preexisting association between trauma and suicidal behavior in conflict-affected communities in Colombia.

The present dissertation is organized into 8 sections. The first part gives a brief introduction of the thesis. The second section provides the context and examines the literature on the effect of armed conflict on mental health, with an emphasis on trauma and suicidal behavior,

as well as the role of social support, it also explores the significance of the study, and presents the research questions and objectives. The third section covers the study's design and methodology, including the study population, collection of data, and statistical analysis. The fourth section presents the study's findings on rates of PTE, suicidal behavior, social capital in the study population. Section five discusses the study findings and implications for mental health policies and practices in FCV, as well as areas for further research. Section six concludes the thesis by summarizing the significant results and accomplishments of the study and emphasizing its relevance to the overall field of global health. The seventh section lists all of the sources cited in the thesis. Lastly, section eight contains extra resources such as the questionnaires used, and any other relevant information.

## II. Background

### **Suicide**

The term 'suicide' originally came into use during the 17th century, with its etymology believed to originate from the Latin words 'sui' (oneself) and 'caedere' (to kill) (24). The adoption of this new concept suggests an intention to establish a clear distinction between the act of self-inflicted death and the act of causing the death of another individual (25). The definition of suicide has been subject to diverse interpretations among different researchers and organizations throughout the years, yet they all agree that it is an act of self-inflicted death (3). According to the Cambridge dictionary, suicide is described as “the act of killing yourself intentionally” (26), an interpretation that aligns with the WHO's definition as “the act of deliberately killing oneself” (27). Nevertheless, the American Psychological Association (APA) provides a rather specific description of suicide as “the act of killing oneself” (28). Furthermore, the specific criteria for suicide may differ across countries, with certain governments requiring evidence of the intent to die (29). In the United States for example, the Centers for Disease Control and Prevention (CDC) (30) specifies that the presence of an intent to die is necessary for classifying a death as suicide. Alternatively, the Office for National Statistics (ONS) (31) in the United Kingdom defines suicide as deaths resulting from deliberate self-inflicted harm or provoked by injury where the motivation for the act remains in question (29). The issue of inconsistent terminology and definitions has

been a popular focal point of debates, primarily due to concerns about potential regional, national, and international discrepancies in accurately estimating suicide mortality rates (25). Nevertheless, the presence of unclear definitions is not the sole factor contributing to variations in suicide rates, as the societal taboo surrounding suicide in many communities may potentially influence professionals in their assessments (24). This can be attributed to present societal and religious biases, as well as considerations regarding the potential repercussions of a suicide on the grieving family members (25).

### Suicidality and suicidal behavior

As of now, there is a lack of a universally recognized definition of suicide (32). Instead, the concept of suicidality has been recently introduced as a broad term encompassing self-injurious behaviors associated with suicide, helping researchers to reduce the complexity of suicide-related terminology (33). The concept of suicidality encompasses a number of manifestations including suicidal ideations, suicidal behaviors, non-lethal and serious suicide attempts, and ultimately, suicide itself (24,33). However, it is important to note that this categorization is relatively new, and most of authors commonly employ the term ‘suicidal behavior’ to encompass the previously mentioned characteristics (3,24,34–36).

The first manifestation is suicidal ideation, and it refers to the cognitive process in which an individual entertains thoughts of self-inflicted harm or death, without necessarily manifesting the corresponding behaviors (37). According to existing models, a relatively small fraction of individuals who experience suicidal ideation ultimately advance to formulating a concrete plan, and furthermore, only a small subset of those individuals who have a plan actually proceed to engage in a suicide attempt (38). This model aligns with the data from the WHO World Mental Health Survey, where the global lifetime prevalence of suicide ideation has been reported to be 9,2%, whereas the prevalence of suicide attempts is estimated to be 2,7% worldwide (3). Nevertheless, despite its relatively low prevalence, it is necessary to give proper attention to suicidal ideation, as its dangerous nature lies in its potential to encourage the formulation of suicidal plans and behaviors (32). Suicidal ideation encompasses both passive and active contemplation of death (35). Passive suicide ideation refers to the presence of thoughts related to death or a desire for death, without any specific plan or intention. This may involve persistent and profound contemplation regarding the wish to stop living, being killed, or afflicted with a terminal disease (33). On the contrary, active suicidal ideation is

characterized by a profound inclination towards death, accompanied by the presence of a well-defined strategy, involving the identification of a particular method or a clear intention to take action, such as contemplation of hanging oneself or overdosing (3). Moreover, suicidal ideation is not static, and can exhibit transitory or persistent characteristics, transitioning from a passive to an active state when the individual is confronted with a stressful or triggering event (33). Furthermore, within the literature, there is a disparity of approaches regarding the classification of suicidal ideation as either an integral aspect of suicidal behavior (35,37,38) or as a distinct element within the broader construct of suicidality (3,32,33).

Based on Keefner and Stenvig(33) model, following the experience of suicidal ideation, an individual may exhibit suicidal-related behaviors or engage in communications related to suicide (33,38). The term ‘suicidal behaviors’ involves actions that are intentionally self-directed and lead to self-inflicted harm or the possibility of harm, and it consists of “suicidal self-directed violence, self-harm with intent to die, and suicide attempt” (33). Such actions are not always directly responsible for death, but they are closely associated with the phenomenon or idea of self-inflicted death (24). Silverman et al. (34) indicate that in order for an act to be classified as a suicide-related behavior, the presence of evidence must be demonstrated, whether explicit or implicit, indicating one of the following: (a) the individual planned on using the false appearance of attempting to take their own life in order to achieve an alternative objective, or (b) the individual had an intention to actually kill themselves. Evidence of suicidal intent is a crucial factor in the occurrence of suicidal behavior, as it requires the presence of a genuine desire to end one's life (33). When an individual engages in self-inflicted potentially injurious behaviors without the intention of dying, it is no longer categorized as suicidal behavior. Instead, it is referred to as self-harm and is classified as non-suicidal behavior (34). However, this behavior can lead to various outcomes, including no injuries, injuries, or even deaths, irrespective of the individual's intention. Furthermore, suicidal behavior can be classified into passive or active forms. Passive suicidal behavior is also known as implicit, and it refers to instances where a person has both the intent and means to commit suicide but does not actually tries it (32). This can manifest through preparatory actions, such as acquiring a firearm or accumulating pills. While active or explicit suicidal behavior refers to instances where individuals engage in behaviors that place

themselves at risk of death, such as engaging in reckless driving or consuming potentially harmful substances (33).

Moreover, there is the suicide-related communication, including both verbal and non-verbal expressions, they may indicate suicidal intentions but do not result in physical harm (34). Through this form of communication, individuals seek to convey their desires and intentions to partake in activities that could cause their death (33). This behavior can be categorized into two distinct subtypes: suicide threat and suicide plan. The former pertains to the act of communicating or indicating the possibility of engaging in suicidal behavior in the short term. This may manifest as suicide notes or verbal expressions of a desire to die. While the suicide plan pertains to the development and arrangement of a particular course of action intended to result in self-injury (24). Moreover, literature acknowledges that suicide-related communications can be perceived as an intermediary stage between cognitions (suicidal ideation) and self-injurious behaviors (actions) (34). Although, the classification of suicide-related communication varies depending on the model, with most researchers considering it as an integral part of suicidal behaviors together with suicidal ideation (24,32,34,35,37), others regard it as an independent element of suicidality (33).

The academic debate surrounding suicidal behavior claims that it is a behavior rather than an illness (25). And the current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (39) does not classify suicidal behavior as a mental disorder. Instead, it is recognized as a factor that can impact the progression, prognosis, and treatment of various psychiatric disorders, involving a range of mental health conditions, such as depression, anxiety, bipolar disorder, and substance use disorders, among others (40). Nevertheless, it has been proposed as a condition for additional investigation. This proposal suggests the potential inclusion of Suicidal Behavior Disorder (SBD) in a future edition, contingent upon additional research (41).

### Implications of suicidal behavior

Ultimately, existing literature suggests three distinct possibilities as potential outcomes of suicide-related behavior. The first possibility entails no injuries or repercussions resulting from the suicidal attempt (25). The second possibility is also known as non-lethal suicidal attempt, and involves sustaining injuries as a consequence of the behavior, including physical injuries, organ damage, psychological trauma or long lasting disabilities (24). Lastly, the third

possibility pertains to instances where the suicide attempt is effective, leading to the individual's death, also known as completed or consummated suicide (32). The distinction between non-lethal suicidal attempts and self-harm is primarily based on the underlying intent. Specifically, a suicidal attempt is characterized by individuals who have made an effort to end their lives but ended up failing in doing so (25), moreover, these non-lethal suicidal behaviors exhibit a greater occurrence rate when compared to consummated suicide (3).

Both suicide and suicidal behavior are significant public health concerns (42). As reported by the WHO (2), the global annual death count resulting from suicide exceeds 700,000 cases, estimating a death by suicide every 40 seconds. Furthermore, existing studies suggest that the lifetime prevalence of suicidal ideation is found to vary between 12,1% and 33%, whereas the prevalence of actual engagement in suicidal behavior is estimated to range from 4,1% to 9.3% (3). The incidence of suicide ideation and suicidal behavior reaches its highest point during the adolescence and early adulthood, resulting in suicide being ranked as the fourth cause of death in women and men aged 15 to 29 years (3). Yet sex is also a significant determinant of suicidal behavior and suicide, as women tend to experience higher rates of suicide ideas and attempts, whereas men tend to have higher rates of completed suicides, often attributed to their preference for more aggressive and lethal methods compared to women (37). Additionally, in 2022, suicide and self-inflicted injuries emerged as the second most prominent contributor to fatal burden of disease across the general population, resulting in an estimated total of 159,200 years of life lost (YLL) (42). This phenomenon is observed around the world, with a greater prevalence in low and middle income countries, constituting 77% of the total reported cases (2). Nevertheless, there remains a shortage of thorough coverage on the widespread incidence of suicide and suicidal behavior. This scarcity can be attributed primarily to the universal stigma related to suicide, which is often viewed as inconsistent with religious or cultural norms in certain countries, and may even be legally classified as a criminal act (43).

### Risk Factors Associated with Suicide and Suicidal Behavior

As previously stated, both sex and age are significant factors in assessing the likelihood of suicide. However, it is important to consider that are other demographic factors that could potentially impact suicide and suicidal behavior, such as ethnicity and education (37).

Psychiatric factors also play a substantial role, as it has been reported that approximately 90 to 95% of individuals who die by suicide have received a psychiatric diagnosis (35), and the risk is even higher when there is a diagnosis of multiple psychiatric disorders (33). Traditional psychiatrists even consider suicide as predominantly being caused by a psychiatric disorder (44); nevertheless, a diagnosis of depression as an independent factor for example, is indicative of an increased likelihood of experiencing suicidal thoughts, but it does not necessarily exhibit a strong correlation with the formulation of specific plans or actual attempts to commit suicide. However, when combined with other psychiatric disorders or interpersonal trauma, depression appears correlated with suicidal behavior and attempts (33). This psychiatric diagnosis that has been the subject of extensive research regarding its association with suicide, (33,44–47) and a number of authors claim that suicidal behavior can be regarded as a manifestation of depression, as it entails a degree of emotional imbalance characterized by feelings of hopelessness (33). Nevertheless, a significant number of suicides occur impulsively during moments of crisis (2). Genetic factors have a significant influence on suicidal behavior. It is important to note that the presence of specific genes directly promoting suicide has not been established. However, numerous genes play a role in shaping our behavioral responses to external stimuli, such as impulsivity and aggressiveness (44). This impulsive behavior is further exacerbated by psychological factors such as the experience of loss, feelings of loneliness, anhedonia, or high emotional reactivity; intensifying the emotional distress to an extent that becomes unbearable and forces an individual to pursue relief through the act of taking their own life (35). Other additional factors are implicated in the manifestation of suicidal behavior, including exposure to stressful life events such as conflict, violence, and abuse. Research conducted in conflict settings has indicated that the prevalence of suicide behavior can vary between 3,72% and 14,81% (48), while others suggest that they potentially reach as high as 30,3% (19). However, the greatest risk factor for suicide is a prior suicide attempt (2), followed by social isolation (47).

### Suicidal behavior models

According to Sun's (24) Suicidal Behavior Model, there are six elements that are implicated in the emergence of suicidal behavior: external hazards, internal crisis, absence of coping devices, absence of significant others, suicidal intent, and a lethal act. The term 'external

hazard' refers to an occurrence in an individual's life that presents an immediate or potential danger to their well-being or ability to function. This event can be classified as either internal or external in nature depending on the source of the stressor. Internal stressors encompass a variety of challenges that can emerge at any point in an individual's development, and the extent of their impact is dependent on the individual's level of preparedness in effectively managing the perceived threat (32). In contrast external or situational hazards involve unexpected incidents in an individual's life, such as the death of loved ones, the presence of mental illness, instances of sexual assault, or any distressing event that poses a risk to the individual (24,49). According to existing research, the initial trigger for suicidal ideation can be attributed to the existence of these hazards. Furthermore, individuals who experience a greater number of hazards are more vulnerable to engaging in suicidal behavior (24). Hazards have the potential to induce an internal crisis, resulting in different symptoms that can be defined as either somatic (such as indigestion, migraines, tiredness) or psychological (including anxiety, fear, hopelessness, and depression) (32). The outcome of this internal crisis is influenced by the individual's coping mechanisms and their access to supportive social networks (24). Having access to coping strategies can potentially contribute to the maintenance of emotional and physical well-being. These strategies can be categorized as either adaptive, involving efforts to directly deal with the triggering event, or maladaptive, involving behaviors that may exacerbate the stressful situation (32). Whereas the existence of social support networks can serve as a promotion variable, offering assistance and reassurance to individuals and positively impacting their overall quality of life and well-being. Conversely, the absence of such connections can lead to a notable decline in a person's quality of life (24). Nevertheless, in the context of social networks, the influence on suicide is affected not only by the absence of these social connections, but also by the quality of pre-existing ones (32). Lastly, the final two components in Sun's (24) model that lead to the manifestation of suicidal behavior are the existence of a suicidal intention and the execution of a lethal act. It is important to note that the level of lethality associated with the act directly correlates with the likelihood of the individual effectively accomplishing their suicide attempt.

Conversely, The Interpersonal Theory of Suicide posits that the occurrence of suicide is dependent on the combination of suicidal desire ( composed by “thwarted belongingness and perceived burdensomeness”) and the “capability” to engage in suicidal behavior, as shown in



Figure 1 (32). The concept of thwarted belongingness is related to the sensation of individuals feeling disconnected, socially isolated, or lacking a sense of belongingness within significant connections or communities. This phenomenon refers to the feeling of not having social support, comprehension, or emotional bonding, which can amplify sentiments of hopelessness and despair. While perceived burdensomeness relates to individuals who hold the belief that they impose a burden on others, understanding that their presence alone leads to distress or inconvenience (47). On the contrary, the capability to engage in suicidal behavior involves an individual's capacity or reduced responsiveness to physical pain and fear of death, thereby diminishing associated barriers against self-inflicted harm (32). This capability may be influenced by exposure to distressing and stimulating encounters, such as traumatic events, instances of violence, abuse, or notable adversity (47). Therefore, the combination of the suicidal desire and the capability to engage in suicidal behavior, has the potential to influence an individual's involvement in suicidal behavior (47).

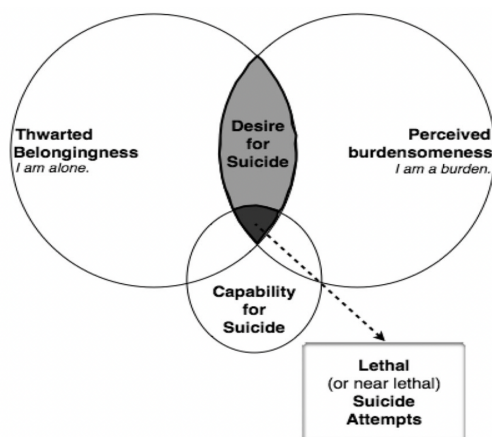


Figure 1: “Assumptions of the interpersonal theory of suicide”(47)

Throughout the years, various models assessing suicide and suicidal behavior have been suggested, the majority of which place an emphasis on the interaction between factors that predispose to an event and triggering elements (3). In addition, a number of different psychological and environmental indicators have been found, such as a previous history of stress and traumatic life experiences, which contribute towards gaining an understanding of the complex connection between psychological distress and suicidal behavior. Trauma, particularly interpersonal trauma, has the capacity to cause significant psychological distress, resulting in individuals experiencing a sense of being confined within an unbearable state of emotional suffering (33).

## Trauma

Psychological trauma could be any upsetting experience that leads to serious disruptive feelings, powerful enough to cause a long-term negative impact on one's well-being (50). In accordance to the DSM-5 (39), trauma is defined as the experience of either actual or perceived near death events, severe physical harm, or sexual violence. Based on this definition, events that induce stress but do not constitute a severe threat to life or physical well-being, such as psychological or social stressors (financial strain, divorce, etc), are not classified as trauma (51). Nevertheless, the 11th edition of the WHO's International Classification of Diseases (ICD-11),(52) defines it as any encounter with a distressing circumstance that is exceptionally threatening or shocking and is expected to provoke intense distress. These experiences, which can be induced by either human or natural forces (50), are known as potentially traumatic events (PTEs).

The prevalence of exposure to PTEs is extensive on a global scale, with a majority of individuals encountering at least one event during their lifetime (5). Moreover, adults residing in urban areas commonly report being exposed to an average of five distinct types of PTEs throughout their lives (53), being the unexpected death of a loved one the most frequently encountered (5). Moreover, a significant portion of global PTE exposure is attributed to a limited number of PTEs. The prevalence of trauma exposure is significantly influenced by five main PTEs, specifically witnessing serious injuries or death, enduring the sudden passing of a close friend or relative, being robbed, being involved in a serious accident, and experiencing a life-threatening illness or injury. These five events, when considered together, account for over 50% of all documented cases of trauma exposure (5). Furthermore, there is substantial evidence indicating that PTE exposure can increase an individual's risk for a number of physical and mental health conditions, including anxiety, depression, post-traumatic stress disorder (PTSD), and suicidal behavior (5,54,55). Additionally empirical data indicates that there is a cumulative effect associated with exposure to PTEs, whereby individuals who experience greater numbers of such events are more susceptible to even more adverse effects on their psychological well-being and overall mental health (53). Also, existing research indicates that there is a slight difference in the association between education and exposure to PTEs depending on the type of event. For instance, individuals with lower levels of education are found to have a higher likelihood of experiencing PTEs

such as interpersonal violence, accidents, and injuries compared to their counterparts within the same region (5). Variations of a similar nature were observed among individuals based on factors such as age, income, and ethnicity (6,53).

The assessment of exposure to PTEs is commonly conducted based on two factors: the proximity to the event, and the nature of the event (6,20). The measurement of proximity to PTEs is typically based on the level of contact with the event. This phenomenon can be classified into two degrees of exposure: direct exposure, which refers to a situation where an individual is personally impacted by an event or witnesses the occurrence of said event happening to someone else; and indirect exposure, where the individual is exposed to the PTE through other sources, as the individual learns about the event without being directly involved or observing someone else's firsthand experience of it (20). While the nature of the event, as implied by its name, depends on the type of the PTE to which the individual has been exposed, and it is the most widely recognized classification of PTEs among authors (20,46,56,57). A limited number of studies designate these categories as: “Accidental/Injury Traumas (e.g., fire, transportation accident); Victimization Traumas (e.g., physical or sexual assault); and Predominant Death Threat Traumas”(56). While the majority of researchers commonly categorize the type of PTEs as interpersonal and noninterpersonal trauma (17,20,23,46,57,58).

### Interpersonal trauma

A PTE identified as interpersonal trauma refers to a distressing incident inflicted by an individual with the deliberate intention of causing harm or instilling fear in another person (17). This definition is consistent with the one provided by Reuben et al. (58), as they characterize it as a type of traumatic event wherein an individual inflicts harm upon another person. The events encompassed within this category exhibit variation among authors, as different perspectives exist regarding the inclusion criteria. Some authors adopt a broad approach, encompassing any event where an individual is deliberately targeted, which may include instances of sexual violence (54,59). Conversely, other authors adopt a more specific approach, explicitly mentioning events such as sexual violence, torture, indoctrination, confinement, witnessing a homicide, physical harm, and exposure to conflict (17).

Noninterpersonal trauma, in contrast, involves any exposure to a PTE that does not fall within the category of interpersonal events (59). Although individuals of all genders and

backgrounds can experience PTEs, young women are particularly susceptible to interpersonal trauma due to its inherent nature (33).

Literature shows that interpersonal violence incidents constitute approximately 18,8% of PTEs on a global level, whereas the experience of death and witnessing other types of violence constitute 30,5% and 21,8% respectively (54). However, alternative academic perspectives propose that the prevalence of adult exposure to interpersonal trauma may be higher than commonly perceived, estimating that approximately 51% to 69% of adults have encountered at least one interpersonal PTE (55,60). Despite the absence of a standardized listing of interpersonal events and the wide range of reported prevalence rates, researchers agree on the enduring impact of interpersonal trauma on multiple dimensions of an individual's development, encompassing social, mental, and cognitive aspects, among others (7,17,23,57,59,61,62).

### Effects of Interpersonal Trauma

Both interpersonal and noninterpersonal trauma can have profound effects on an individual's psychological and emotional welfare, resulting in enduring emotional pain (53). PTSD, for instance, is an extensively researched response to trauma exposure and PTEs, as the occurrence of a traumatic event is an essential element for the diagnosis of this disorder (51). A variety of other psychiatric disorders, including depression (63), anxiety (21), suicidal behavior (64), and substance abuse (65), have been investigated in terms of their dependence to trauma. Research findings indicate that a considerable percentage of individuals who have been diagnosed with these disorders, ranging from 3% to 85,5%, have reported the occurrence of at least one PTE prior to their diagnosis (21,63–65), which indicates that exposure to trauma may function as an accurate indicator for the occurrence of these disorders. Furthermore, it is important to acknowledge that interpersonal trauma has the potential to greatly exacerbate these outcomes and present unique difficulties (58). Research has shown that exposure to interpersonal PTEs specifically can increase an individual's vulnerability and have adverse effects on their self-esteem (59). Consequently, this heightened vulnerability can lead to various negative outcomes, such as emotional dysregulation, disorganized attachment, and an increased likelihood of experiencing further victimization (23). These are just a few examples of the numerous consequences that

individuals may encounter following exposure to interpersonal PTEs, as the effects differ among people.

Research findings indicate that there is a stronger correlation between interpersonal trauma and a higher probability of experiencing subsequent trauma, as well as more pronounced and persistent psychiatric symptoms, in comparison to noninterpersonal trauma (53). One of the outcomes that has been more strongly linked to interpersonal trauma than noninterpersonal trauma during both childhood and adult exposure is suicidal behavior, including ideation and attempts (54). This phenomenon is believed to primarily occur due to the fact that being exposed to interpersonal PTEs increases an individual's vulnerability to experiencing emotional distress and developing mental health disorders, which has already been linked with suicidal behavior (5,55). Nevertheless, empirical evidence has demonstrated that the indicators of interpersonal trauma are greater predictors for suicidal behaviors, surpassing psychiatric conditions such as depression (33). Furthermore, research has shown a correlation between childhood exposure to interpersonal trauma and an increased chance of experiencing difficulties in regulating affect and impulse (23). This, in consequence, may lead to a decreased fear of deaths and a greater capacity to deal with pain, ultimately influencing the development of the acquired capability for suicide (47).

## **Social capital**

The concept of social capital encompasses the various "institutions, relationships, and norms that shape the quality and frequency of social interactions" (8), and is often described as the "glue that holds societies together" (66). The conceptualization of social capital within the field of health sciences encompasses five fundamental attributes associated with the community: connections, involvement, identity, cooperation, and trust (67). Moreover, social capital is a concept that encompasses multiple dimensions, specifically structural and cognitive elements. The structural component refers to the number and diversity of interpersonal connections, while the cognitive component refers to the level of quality of these connections (68). Both structural and cognitive social capital can have two types of connections called bonding and bridging. Bonding social capital involves the emergence of interpersonal relationships within one's local community or among individuals who share common attributes, such as shared ethnicity, social class, or other identifiable characteristics.

Conversely, bridging social capital involves relationships with individuals who do not belong to one's immediate community or have distinct attributes (69).

The Social Capital Index (70) provides an assessment of a nation's social capital, encompassing the combined measure of social stability and the population's well-being. This report provides an analysis that highlights the countries with the highest levels of social capital. In 2020 the 20 countries with the highest social capital levels primarily comprise European nations, with the relevant inclusions of South Korea, Japan, and Singapore. Furthermore, the South American countries that have achieved the highest rankings are Costa Rica, Argentina, and Ecuador, which are positioned at the 62nd, 66th, and 69th places, respectively. Senegal ranks 80th and Burkina Faso ranks 83rd among the countries in Africa with the highest rankings (70).

Extensive research has demonstrated a positive correlation between social capital and different kinds of health outcomes, including mental health and self-reported physical health (8,67,71). Among the mental health outcomes that has been found to have a positive association with social capital are depression and suicidal behavior (72). This is because individuals are able to receive reassurance and support from others, which aids in their ability to cope with life stressors that may contribute to the onset of depression or suicidal behavior (24). Low social capital is therefore seen as a risk factor for the emergence of such conditions (72). Social support can be considered a consequence of social capital due to its ability to facilitate connections that enable individuals to both receive and provide support (73). Moreover, evidence suggests that individuals who experience increased levels of social support demonstrate better adaptability in facing and responding to PTEs (74). Specifically, research indicates that these individuals are up to 180% less prone to suffer from PTSD compared to their peers (75). Additionally, research has shown that social capital is negatively correlated with the probability of engaging in suicidal behavior. Specifically, individuals with higher levels of social support are found to have a reduced risk of lifetime suicide attempts, with a decrease of over 30% compared to those with lower levels of social support. This association remains significant even after controlling multiple established risk and protective factors associated with suicidal behaviors (76). Furthermore, personal connections that are characterized by difficulties have an adverse effect on social support, and are strongly associated with more severe symptoms of depression and an increased likelihood of engaging in suicide attempts (72).

## **The interplay of interpersonal trauma, suicidal behavior and social capital**

Previous studies have indicated that there is a potential association between social capital and the mental health consequences of interpersonal trauma (77). Additionally, the Interpersonal Theory of Suicide suggests that social capital plays an essential part in understanding suicidal behavior (78). There is a widespread view that exposure to interpersonal PTEs have an impact on emotional, cognitive, physical and interpersonal development (57). These exposures can lead to feelings of isolation and indifference in previously enjoyed activities (32). The resulting disconnection and emotional consequences of trauma, along with challenges in establishing and sustaining healthy relationships, can contribute to individuals perceiving themselves as burdensome to others (57). This intensifies their sense of being burdensome and lacking a sense of belonging, having an effect on their suicidal desire, and fulfilling two of the three concepts identified by Van Orden (47) as influential factors in suicidal behavior. This is consistent with the argument claiming that having a social support system can enhance individuals' sense of belongingness by providing assistance in managing stressful situations and challenges (76). This, consequently, is linked to a reduced risk of suicide based on the Interpersonal Theory of Suicide (47).

Furthermore, the third component of the Interpersonal Theory of Suicide (47) is related to the capability for suicide. This phenomenon can occur as a result of early exposure to interpersonal trauma, leading to problems with impulse regulation (23). Consequently, individuals may experience a diminished fear of death and become less sensitive to the potential consequences associated with engaging in suicidal behaviors (47). Moreover, people exposed to repetitive life-threatening PTEs may also exhibit increased vulnerability for diminished fear of death and a greater capacity for experiencing physical pain (32). Based on this theory, the coexistence of suicidal desire and capability is associated with an elevated probability of engaging in suicidal behavior (47). This likelihood appears to be particularly high in cases where interpersonal trauma is present alongside low levels of social capital (72,77).

The engagement in suicidal behavior is not solely determined by a singular exposure to a PTE (54). The outcomes of such reactions exhibit significant variation, influenced not only by social capital but also by the individual's personal attributes and beliefs (76). Nevertheless

is important to consider that the level and nature of exposure to PTEs may influence the probability of engaging in suicidal behavior (5). The exposure to PTEs can affect individuals from any background, but the specific types of exposures may vary depending on their sociodemographic characteristics, including nationality, socioeconomic status (5). Individuals residing in fragile, conflict-affected and vulnerable (FCV) settings are particularly at higher risk, as they not only experience direct exposure to traumatic events but also endure chronic stress and trauma resulting from living in such environments (10).

### Fragile, conflict-affected and vulnerable settings

FCV settings are commonly characterized by the occurrence of emergency situations, long-lasting crises, or armed conflict (79). The prevalence of such scenarios is higher in middle-income countries (MICs) compared to low-income countries (LICs), with an estimated population of over 1.2 billion based in a FCV setting worldwide (10). And estimations suggest that by 2024, the overall population of individuals living in extreme poverty within FCV settings may exceed the number of individuals living in extreme poverty within non-FCV settings (9). In FCV environments, the prevalence of mental health issues is intensified due to exposure to such adversities, leading to increased levels of stress that can potentially contribute to the development of psychosocial or psychiatric disorders (10).

Within the context of armed conflict, the leading forms of PTEs involve crossfire, abuse, forced labor, assaults, torture, and captivity (75). The availability of information regarding interpersonal trauma is limited, as the primary research focus is on intimate partner violence. However, the most prevalent interpersonal PTEs include events of sexual abuse and sexual harassment, with rates of occurrence varying from 17,8% to 39,7% in women and 4% to 23,6% in men (80). Worldwide, within armed-conflict settings it has been observed that around 10% of individuals who are exposed to traumatic events are prone to developing severe mental health disorders, whereas an additional 10% may display behavioral patterns that interfere with their functioning capacities (81). In those instances, individuals who have experienced PTE may face challenges in accessing support services, such as mental health care (10). The elevated vulnerability caused by traumatic experiences can be additionally worsened by the absence of social networks and resources (57). Therefore, the association between the effects of trauma and the vulnerability of the context may increase the probability of engaging in suicidal behavior (81,82).



## **The case of Colombia**

Colombia is ranked 59th on the Fragile States Index (83), making it the fourth Latin American country to be included on the list, following Haiti, Venezuela, and Honduras. The country has over 51 million inhabitants (84), and has been afflicted by one of the world's longest-running conflicts, with more than five decades of internal armed mobilization (12). It officially started as a struggle for power between the Revolutionary Armed Forces of Colombia (FARC) and the Colombian government in the 1960s. Other armed groups, such as The Army of National Liberation (ELN) and right-wing paramilitary groups, have joined throughout the years (12). Overall, a number of causes have contributed to the fighting, including economic disparity, poverty, corruption, criminal activity involving drugs, and the scarcity of prosecution. The armed conflict has left an enormous impact on dead, disappeared, and internally displaced people, as estimations suggest that between the years 1985 and 2012, 220,000 Colombians lost their lives as a result of violence, and nearly 6,000,000 were internally displaced (11). Throughout the years, a number of different negotiations have been attempted, with some achieving a higher level of success than others. The most recent of these initiatives took place in 2016 with the signing of the Peace Agreement between the Colombian government and the FARC (13). In light of this, Colombia is now recognized as a post-conflict scenario. Nevertheless, despite the fact that this pact has contributed to a reduction in violence, there are still barriers that need to be addressed, such as the implementation of the agreements and the demobilization of other armed groups (13). Additionally, as an attempt to mitigate the repercussions of the armed conflict on the general population, in 2011, the Law 1448 or Victims and Land Restitution Law was introduced (85). This law mandates the administration of healthcare services, including physical and mental rehabilitation, as well as psychological treatment, to those who have been affected by the armed conflict (86).

However, the country's scenario has been characterized by violence and instability, resulting in significant trauma and psychological distress among its people (14). In line with the directives of the Ministry of Health and Social Protection in Colombia (Spanish: Ministerio de Salud y de Protección Social), the matter of mental health emerged as a highly pressing issue amidst the numerous challenges that arise from the armed conflict. Consequently, the National Mental Health Survey (15) was introduced in 2015 to evaluate the mental health of children and adults in the country, with a particular emphasis on identifying potential risk

factors that may contribute to the manifestation of mental disorders, such as being subjected to violence (87). Based on the results of Colombia's National Mental Health Survey (15) in 2015, 40,8% of adults over the age of 18 have experienced at least one traumatic event in their life. Of these encounters, 10,8% were related to organized crime, 7,9% were associated with armed conflict, and 7.4% were related to domestic abuse. Suicidal behavior was also measured on National Mental Health Survey, discovering that 7,4% of the adult population have contemplated suicide, 2,3% have a concrete plan to consolidate it, and 1,9% and 3,3% of men and women, respectively, have had at least one attempt of suicide. Although evidence on trauma exposure and suicidality in Colombia is limited, previous research concludes that suicide is equally or more directly associated to experiences that are not primarily connected to the conflict (88).

Nevertheless, suicide in Colombia has become a significant concern in terms of public health. Recent data from the Ministry of Health and Social Protection (16) revealed a notable increase of 7,8% in suicide rates in 2021 compared to the previous year, resulting in the loss of 2,962 lives in the country. The prevalence of suicidal behavior, particularly suicidal attempts, has exhibited an increasing pattern as well, with a notable increase of 10,9% between 2017 and 2018. Among the individuals who engaged in such behavior, 63,4% were female, while teenagers and young adults aged 10 to 29 years constituted 73,5% of the total affected population (89). Moreover the main factors contributing to suicide attempts include conflict with a spouse, economic issues, problems in school, and instances of physical, psychological, or sexual abuse (90).

## **Gaps and significance**

The mental well-being of individuals living in conflict-affected communities in Colombia has become a major area of interest, requiring exhaustive studies to address the complex barriers faced by these vulnerable groups. A limited amount of literature has provided insights into the growing prevalence of mental health concerns in the country, such as the exposure to PTEs and the increased rates of suicidal behavior (11,87,88). Nevertheless, the majority of academic research on interpersonal trauma primarily focuses on childhood trauma or domestic violence (7). Therefore, the prevalence and implications of interpersonal PTEs within FCV communities continue to be uncertain. Moreover, existing literature on FCV

settings predominantly concentrates on refugee populations from the Middle East and North African region (17–19), while there is a noticeable shortage of research conducted in Latin American contexts. Limited research has been conducted on interpersonal PTEs and suicidal behavior in Colombia. Furthermore, previous studies conducted in this population have not taken into account the potential moderating effect of social capital. Therefore, the significance of this study lies in its potential to contribute to the discussion connected to the possible impact of social capital on the already established association between exposure to trauma and suicidal behavior in FCV settings. Additionally, this study stands out due to its examination of PTEs from both interpersonal and noninterpersonal perspectives, enabling the identification of any disparities in outcomes across different event types. Hence, this study aims to provide an understanding on the potential buffering or intensifying impacts that social capital may have on the relationship between the type of PTE, either interpersonal or noninterpersonal, and the engagement on suicidal behavior. Understanding the impact of social capital is imperative due to its potential as a safeguarding element for mental health outcomes. This study addresses a significant gap in the literature by analyzing this link in conflict-affected communities while taking into account particular challenges faced by individuals who live in such environments. The findings will further our knowledge of the underlying factors leading to mental health issues in conflict-affected regions by providing insight into the complex connections between social capital, exposure to PTEs, and suicidal behavior.

The study's implications for global health lie in its capacity to generate evidence-based knowledge that can be applied to the development of targeted interventions, support strategies and policies aimed at enhancing mental well-being and resilience in similar contexts around the world. By addressing the mental health needs of conflict-affected populations, the study contributes to the broader goal of improving global mental health outcomes and reducing the burden of mental illness in vulnerable communities. Moreover, this research emphasizes the urgent need of further mental health resources and support for those living in regions affected by conflicts. By expanding our knowledge of trauma and the role of social capital in mental health outcomes, researchers can work towards establishing more efficient policies and programs aimed at improving psychological well-being in these highly vulnerable groups.

## **Research questions, objectives and hypothesis**

### *Research questions*

1. What is the prevalence of the direct exposure to potentially traumatic events, high level of suicidal behavior, and social capital among individuals living in conflict-affected communities in Colombia?
2. Is there an association between direct exposure to noninterpersonal and interpersonal traumatic events and high level of suicidal behavior?
3. Does social capital have an impact on the association between the direct exposure to noninterpersonal and interpersonal potentially traumatic events, and high level of suicidal behavior among individuals living in conflict-affected communities in Colombia?

### *Objectives*

1. To describe the prevalence of social capital, exposure to potentially traumatic events, and high level of suicidal behavior among our study population
2. To analyze the relationship between the exposure to interpersonal and noninterpersonal potentially traumatic events and high level of suicidal behavior
3. To explore the moderator effect of social capital on the relationship between the exposure to interpersonal and noninterpersonal potentially traumatic events and high level of suicidal behavior

### *Hypothesis*

1. There is a positive correlation between potentially traumatic events and an increase in suicidal behavior

The hypothesis claims that those who have undergone events that are potentially traumatic may be at a higher risk of engaging in suicide-related behavior due to the psychological and emotional repercussions of such events.

2. Greater levels of social capital will serve as a moderator weakening the positive correlation between exposure to potentially traumatic events and high levels of suicidal behavior.

This hypothesis suggests that the likelihood of engaging in suicide-related behavior is

increased by exposure to events that have the potential to cause trauma. The argument states that the presence of social capital, indicating the resources and assistance accessible within an individual's social circle, may act as a moderator in the association between exposure to potentially traumatic events and the manifestation of suicidal behavior. Moreover, this hypothesis suggests that increased levels of social capital can serve as a promotion variable against the negative impact of traumatic experiences on the risk of engaging in suicide-related behavior.

## **Partnership**

This thesis will be carried out in collaboration with The Danish Institute Against Torture (DIGNITY), and will make use of data from the project Mental Health in Post-Conflict Colombia.

DIGNITY is a non-governmental organization established in Copenhagen that has been dedicated to preventing torture and other cruel, inhuman, or degrading treatment for the past 40 years. The organization's mandate is divided into four primary areas: documentation and prevention of torture, rehabilitation of torture survivors, advocacy and education, and capacity building for professionals and organizations working in the field of torture prevention and rehabilitation. It employs over 140 people worldwide and operates in more than 20 countries across Africa, Asia, the Middle East, Europe, and Latin America (91).

Because of Colombia's history of violence and torture, in 2018 DIGNITY launched a project in partnership with The Ministry of Health and Social Protection in Colombia, and the Colombian private university Universidad de Externado. The project, entitled Mental Health in Post-Conflict Colombia (MHPCC), emerged with the intention of acquiring an in-depth overview of the population living in conflict-affected communities and developing mechanisms for improving the country's mental health care system. It is a mixed-methods research project that includes an extensive questionnaire-based interview for detecting individuals who are in need of psychiatric or psychological assistance, as well as interviews and focus groups for investigating strategies to improve the provision of psychological services in conflict-affected areas. The MHPCC reached over 4,000 participants and was

conducted in five departments (Fig. 2) in Colombia: Bolívar, Cauca, Meta, Putumayo, and Tolima.

Figure 2: Geographical Location of Participating Departments in the MHPCC Project (92)



These five departments are strategically located across Colombia, and have been significantly impacted by the armed conflict (12). Bolívar is situated in the northern part of the country, along the Caribbean coast. This region is known for its historic city of Cartagena, a major port and popular tourist destination. Bolívar accounts for 4,1% of the total population of Colombia, with 2.12 million inhabitants (93). In terms of economy, households in this department exhibit below-average income levels, with 36,2% of the population residing in poverty, in contrast to the national average of 27% (94). The second department in the MHPCC project is Meta, which is located in the eastern region of Colombia and encompasses a portion of the Orinoco Basin. This department has a population of almost one million individuals, which represents approximately 1.9% of the total population of the country (95). Due to its key geographical characteristics, the region of Meta has been heavily affected by the presence of armed groups and the overall armed conflict, resulting in the displacement of numerous inhabitants over the last decades (96).

Next is Tolima, a department located in the central part of Colombia, in the Andean region. It has both urban and rural areas, and is known for its agriculture and natural landscapes. It has a population of 1.4 million inhabitants, encompassing approximately 2,7% of the total population of the country (97). Moreover, Tolima shares a southern border with Cauca, which

is also located within the Andean region, in the southwestern part of Colombia, and is surrounded by mountains, valleys, and rivers (98). The poverty rates of the department of Cauca rank third highest in the country, with an estimated 50,5% of its population living in these conditions (94). The armed conflict has had a significant impact on both of these departments. This may be attributed to the historical presence of the FARC in these regions, which is mainly because of their remote and inaccessible characteristics, as well as the absence of state authorities (12).

And the fifth department included in this project is Putumayo, situated in the southern region of Colombia, sharing borders with Ecuador and Peru. This region is known for its lush rainforests and is part of the Amazon Basin (99), and exhibits the lowest population count within the MHPCC project, with just over 350,000 residents. Furthermore, it is estimated that the ongoing conflict has resulted in the internal displacement of approximately 140,000 individuals within the past 25 years (100).

Previous to writing this thesis, I was an intern in DIGNITY for six months, where I closely worked with the MHPPC project. I was introduced to the study at the final stage and used the information collected to examine the effects of exposure to different traumatic events on suicide risk in the study population. That investigation, along with my thesis, will contribute to the project's intended final knowledge dissemination outcomes.

### III. Methodology

#### **Study design**

This cross-sectional quantitative study is part of the MHPCC project, which was carried out in 5 departments in Colombia. With the aim of looking into suicidal behavior, social capital and trauma exposure in conflict-affected population, three scales from the interview questionnaire were employed. Moreover, this study took place a year and a half after the data collection was completed, in collaboration with DIGNITY and Universidad de Externado.

In the present study, the Royal Danish Library was utilized as a resource to conduct a comprehensive search across multiple databases. The search terms employed included "suicidality," "suicidal behavior," "trauma exposure," "traumatic events," "interpersonal trauma," "social capital," "social support," and "social networks," as well as multiple combinations of these terms.

Furthermore, within the context of this research, the definition of suicidal behavior proposed by Sun (24) will be employed, given its extensive review and acknowledgment within the field of academia. This definition encompasses suicide-related ideation, suicide-related behavior, and suicide-related communications, all of which are considered integral components of the broader concept of suicidal behavior. Furthermore, given the lack of a universally established compilation identifying the events of interpersonal trauma, and the current consensus among scholars regarding the events that fall within this category (5,20,47,53,55,58), the classification proposed by Jaffe et al. (59) will be adopted for the purposes of this study. This classification encompasses interpersonal trauma events that involve physical assault, assault involving weapons, rape, and any other form of unwanted sexual experience (59). Additionally, for the exposure PTEs, May and Wisco's framework will be adopted, where direct exposure to a PTE is defined as the personal experience of being directly affected by the event or observing the event happening to another individual (20).

## **Study population**

The study's sample consisted of adult individuals aged 18 years or older, who possessed the capacity to provide informed consent, and agreed to complete the designated survey instrument. The participants originated from five distinct departments within Colombia, particularly Bolívar, Cauca, Meta, Putumayo, and Tolima. Universidad Externado selected three municipalities from each department, leading to a total of 15 municipalities that were investigated in Colombia.

The process of selecting municipalities involved a classification system based on the degree of conflict present within each of the 177 municipalities located across the five departments. A descriptive analysis was conducted by Universidad Externado to categorize the



municipalities into three levels of conflict: low, medium, and high. The model of categorization considered multiple variables, such as the number of victims, the amount of violent incidents, the rate of consultations for mental health issues, incidence of suicide attempts, and instances of gender-based violence. After calculating the score for each municipality, the quintiles of the 177 data values were obtained and then used to categorize them into high, medium, and low groups. Table 1 displays the outcomes for each department.

*Table 1: The number of the municipalities in the selected departments for the MHPCC project categorized based on their level of conflict*

	<b>Bolívar</b>		<b>Cauca</b>		<b>Meta</b>		<b>Putumayo</b>		<b>Tolima</b>		<b>Total</b>	
	N	%	N	%	N	%	N	%	N	%	N	%
High	5	11	31	74	11	38	9	69	15	32	71	40
Medium	10	22	6	14	6	21	2	15	11	23	35	20
Low	31	67	5	12	12	41	2	15	21	45	71	40
<b>Total</b>	46	100	42	100	29	100	13	100	47	100	177	100

Following the classification of municipalities based on their level of conflict, those that exhibited the presence of armed groups or proved unreachable due to road conditions and associated expenses were excluded (Table 2).

*Table 2: The number of the municipalities in the selected departments for the MHPCC that were excluded based on armed groups presence or transportation and cost limitations*

	<b>Bolívar</b>		<b>Cauca</b>		<b>Meta</b>		<b>Putumayo</b>		<b>Tolima</b>		<b>Total</b>	
	N	%	N	%	N	%	N	%	N	%	N	%
Armed groups presence	1	14,2	6	37,5	1	25	2	33,3	2	25	12	29,2
Transportation and costs limitations	6	85,8	10	62,5	3	75	4	66,7	6	75	29	70,8
<b>Total</b>	7	100	16	100	4	100	6	100	8	100	41	100

## Sampling

After identifying the municipalities that met the eligibility criteria for the study, a multi-stage sampling process was applied to select three municipalities from each department. The total

number of municipalities selected was 15, with five municipalities falling under the medium conflict level category and ten municipalities falling under the high conflict level category. The rationale for the existence of two municipalities within each department exhibiting high levels of conflict was to facilitate the implementation of an intervention, in which one of the municipalities with a high conflict score would function as a control group in each department.

Following the selection of the final project municipalities (Table 3), The Ministry of Health and Social Protection in Colombia employed a multi-stage sampling process to identify the study population within said municipalities. This process involved the selection of blocks in urban areas and paths in rural communities. The calculation of the sample size for the municipalities was based on the formula used for the National Survey of Mental Health in 2015 (15), estimating 5,803 participants in total.

*Table 3: Selected municipalities for the MHPCC project and their conflict level*

<b>Region</b>	<b>Department</b>	<b>Municipality</b>	<b>Conflict level</b>
<b>Atlantica</b>	Bolívar	El Carmen de Bolívar	Medium
		Santa Rosa	High
		San Pablo	High
<b>Pacifica</b>	Cauca	Buenos Aires	High
		Cajibío	High
		Guachene	Medium
	Meta	El Dorado	High
<b>Oriental</b>	Meta	Granada	Medium
		San Juan de Arama	High
	Putumayo	Orito	High
		Mocoa	High
San Francisco		Medium	
<b>Central</b>	Tolima	Chaparral	High
		Icononzo	Medium
		Lerida	High

## **Instruments**

As part of the MHPCC project, DIGNITY and Universidad Externado joined forces to create an extensive and inclusive tool in the form of a 140-item questionnaire. This questionnaire encompasses multiple dimensions associated with mental health and well-being. The study takes into account a range of factors, which includes, living arrangements, group affiliation, experiences as victims during the conflict, overall health evaluation, functional ability and pain limitations, exposure to traumatic events and violence, post-traumatic stress disorder (PTSD), levels of anxiety and depression, suicidality, consumption of psychoactive substances, attributions of mental health issues to the conflict, healthcare service preferences, accessibility and proximity to healthcare facilities, experiences of social stigma and discrimination, social capital, and a COVID Module designed to capture symptoms and perceptions related to the ongoing pandemic. This exhaustive evaluation functions as a valuable tool for assessing and understanding the various dimensions of psychological well-being during conflict in relation to the MHPCC initiative.

For the purpose and objectives of this dissertation, three scales from the original MHPCC questionnaire were employed, including the DSM-5 Life Events Checklist (LEC-5) to measure exposure to potentially traumatic events, the Okasha Suicidality Scale to determine suicidality symptomatology, and the Short Version of the Adapted Social Capital Assessment Tool (SASCAT) to assess social capital.

### **The DSM-5 Life Events Checklist**

The LEC-5 is a self-administered assessment tool that has been developed to evaluate the exposure to potential traumatic incidents throughout an individual's lifespan (101). In addition, the instrument has undergone adaptation into the Spanish language and has been validated for use in the Mexican population (102). The LEC-5 is a tool employed for evaluating an individual's exposure to 16 events that are recognized to have the potential to lead to distress and Post-traumatic stress disorder (PTSD). On top of that, it covers an extra item that evaluates any other life-threatening or stressful events that may not have been accounted for in the initial 16 items (103). The LEC-5 assessment tool merely provides insight into the incidence of listed events both interpersonal and noninterpersonal, and the level of exposure experienced by an individual, without generating a cumulative or total score

(58). The response is documented on a nominal scale of 6 points, reflecting the degree of exposure to the particular event, including 'Happened to me,' 'Witnessed it,' 'Learned about it,' 'Part of my job,' 'Not sure,' and 'does not apply' (101). However, the questionnaire administered to the participants of the MHPCC project presented only five response options, as the categories of 'Not sure' and 'Does not apply' were combined into the category of 'Not exposed'.

### The Okasha Suicidality Scale

To determine suicidal behavior among the participants, the Okasha Suicidality Scale was used, which has already been adapted into Spanish and validated in the Chilean population (104). The scale considers suicidal ideation and prior suicide attempts in the participant's lifetime. The instrument consists of four items: Have you thought that life is not worth it? Have you ever wished you were dead? Have you ever thought about ending your life? (105). The first three questions are evaluated using an ordinal scale that ranges from 0 to 3 points, corresponding to the responses in the order of never, hardly ever, sometimes, and many times. The result that varies from 0 to 9 points is indicative of the suicidal ideation subscore. Meanwhile, the last question is also answered in an ordinal scale, ranging from 0 to 3, corresponding to the suicide attempts the participant has had throughout their life. A score of 0 indicates no attempts, while a score of 3 represents three or more attempts. The combined value of the subscore associated with suicidal ideation and the score corresponding to the question about suicide attempt results in the overall score of the suicidality scale. The total value may vary from 0 to 12 points. A score of 5 or higher is indicative of an increased suicidal behavior (104).

### The Adapted Social Capital Assessment Tool

The SASCAT was used to determine the social capital in this study. It is a modified version of the Adapted Social Capital Assessment Tool (A-SCAT), which was formerly employed in the regions of Sub-Saharan Africa and Colombia (106), and is utilized to assess the social capital of caregivers who are responsible for the care of children between the ages of 1 and 8 years old (68). The SASCAT is a 9-item tool that considers the past 12 months of the participant's life, and has already been translated into Spanish and validated with the Peruvian population (68). This specific tool explores the dimensions of both structural and cognitive social capital. The structural capital is further classified into four distinct subcategories: group membership,

support from group items, support from individual items, and citizenship activities (68). Consistent with prior research (67–69,107,108), the four subcategories of structural capital were merged into two distinct subcategories: bonding and bridging. Specifically, bonding corresponds to group membership, support from group items, and support from individual items, while the citizenship item is classified under the bridging category. With this new classification, structural capital is divided into two subcategories, where bonding includes three items and it is measured on a scale of 0-25 points, and bridging has two items ranging from 0-2 points, while cognitive social capital has four items and goes from 0-4 points (106). Currently, there is a lack of specific guidelines for evaluating the SASCAT, with the exception that a higher score on the assessment corresponds to an increased level of social capital (69).

## **Data Collection**

The data was gathered via structured-questionnaire-based interviews administered by 24 trained staff members. The interviews were conducted at the residences of the participants and had a duration ranging from 45 to 75 minutes. The data collection process covered a nine-month period from January to October 2021. Due to the study's nature and the potential for the questionnaire to trigger participants, interviewers were chosen based on their prior experience working with vulnerable or distressed groups, as well as their academic background in the disciplines of health, psychology, and social work. Additionally, the selection of interviewers was based on their department of residence, as they were exclusively tasked with conducting interviews for candidates residing within their respective departments, with the aim of minimizing transportation expenses.

With the intention to fully prepare the 24 interviewers, Universidad Externado conducted an online preliminary training program that encompassed a thorough introduction to the instrument utilized in the MHPCC project and its intended objectives, followed by a meticulous examination of all sections of the questionnaire, appropriate interview methodologies, and guidelines on how to approach and document households. Moreover, the interviewers underwent training sessions to acquire the skills necessary to recognize and provide assistance to individuals who have been significantly impacted by psychological trauma and mental health conditions. Furthermore, the personnel responsible for gathering

the information maintained regular communication with their local supervisor, conducted debriefing sessions, and were provided with access to mental health professionals such as counselors and psychiatrists as a precautionary measure against the possibility of experiencing secondary trauma.

## **Data management**

The 140-item survey was loaded into the ArcGIS Survey123 software, which enables users to generate, distribute, and evaluate surveys. This software can be utilized on both web and mobile platforms, and is not dependent on an internet connection (109). Each interviewer was equipped with a tablet device containing the survey software, which they utilized during each visit to capture the survey responses electronically. However, in particular circumstances, such as encountering technical difficulties or prioritizing safety measures, the survey was manually filled out on paper and then transcribed into Survey123. Upon completion of data collection, the confidential personal information of the participants was encrypted and subsequently randomized. The data was then exported to SPSS for analysis, and any inquiries that were omitted by the interviewer or left unanswered by the participant were noted as missing values. Universidad Externado was responsible for the entire process of data collection which was then cleaned up and organized in collaboration with DIGNITY.

Furthermore, the variables of interest for this study were extracted and organized into a separate SPSS data set.

## **Scale operationalization**

Given that two out of the three scales utilized in this study lacked explicit instructions for determining a comprehensive score or interpreting it, the scales were evaluated in the subsequent manner.

### **The DSM-5 Life Events Checklist**

For purposes of this study, the 17 items of the LEC-5 were classified into two distinct categories, namely interpersonal and noninterpersonal, based on the categorization employed by Jaffe et al. (59). This approach considers physical assault, assault with a weapon, sexual assault, and other unwanted sexual experiences as interpersonal experiences, while the other

13 events on the LEC-5 are considered as non-personal events. This categorization exclusively includes incidents cataloged as direct, in which individuals have either directly encountered or witnessed a potentially traumatic event (20). The rationale for excluding the exposure level of "heard about it" from the original LEC-5 scale is due to the fact that the study cohort comprises individuals residing in a conflict-ridden environment, where the majority of the population is highly familiar with the events in question. Therefore this level of exposure was excluded to prevent an inadequate representation and to concentrate on individuals who have had greater proximity to the incidents. Moreover, the two stated categories exhibit the characteristic of being mutually exclusive. This implies that individuals who only indicated noninterpersonal events will be categorized as such, whereas individuals who reported both noninterpersonal and interpersonal events will be classified under the interpersonal category. The proposed categorization presents an opportunity to investigate the extent of exposure to events and draw contrasts between individuals who have not experienced any form of traumatic event and those who have been exposed to either interpersonal or non-personal trauma.

### The Okasha Suicidality Scale

The scale was employed to investigate the likelihood of engaging in suicidal behavior. In contrast to the previous scale, the current one incorporates specific scoring guidelines, which propose a threshold of 5 for the overall rating. This cutoff indicates that a score of 5 or higher is suggestive of the increased likelihood of engagement in suicidal behavior. Therefore, a binary classification was used for its further analysis.

### The Adapted Social Capital Assessment Tool

The operationalization of the social capital variable for the descriptive analysis in this study involved determining a cutoff point on the SASCAT that would allow for meaningful comparisons between groups. While there are no specific guidelines regarding the scoring of the SASCAT, it is established that higher scores on the scale would indicate higher levels of social capital. In order to identify a cutoff point and facilitate comparisons among the population being studied, a descriptive analysis was conducted. The main objective of the descriptive analysis was to identify a cutoff point that would yield a balanced distribution of individuals on either side. This would enable the creation of a binary variable representing low and high social capital, respectively. Through the descriptive analysis (see appendix D),

it was observed that approximately 54.3% of the population scored within the range of 0-3 on the SASCAT. This finding allowed for the approximate division of the total study population into two equal halves. Consequently, a cutoff point of 3 was deemed appropriate as it met the criteria of having a comparable number of individuals in each group. Based on the established cutoff point, a threshold score of 3 was defined to classify individuals as having low social capital, while those with a total score of 4 or higher were classified as having high social capital. This dichotomous categorization ensured that the population was evenly divided into two distinct groups for subsequent analysis.

In order to ensure comprehensive representation of participants' responses across all items, a 2-way table analysis was performed, with particular focus on the first three items of the scale. Given the fact that these specific items represented 80% of the overall score, it was essential to ensure that the scores of the participants were distributed evenly across all scale items rather than being heavily weighted towards the initial three questions. The cross-table analysis facilitated an examination of the distribution of scores within the first three categories and identified whether they accurately represented participants' overall social capital. This analysis worked as a quality control measure to ensure that the total score reflected an accurate representation of participants' responses across all scale components, reducing an overemphasis on the first items. Nevertheless, for the moderation analysis, a continuous measure of social capital was used.

## **Data analysis**

Prior to conducting the data analysis, the raw data was randomized and cleaned by Universidad Externado and DIGNITY. The variables of interest for this study were extracted from the cleaned dataset and organized into a separate SPSS data set. Moreover, the analysis process was carried out in close collaboration with staff from Universidad Externado and DIGNITY, ensuring expertise and accuracy in the statistical analysis. The descriptive analysis covering the demographics and the first research question was conducted using IBM SPSS Statistics for Windows version 28, a well-established software package widely used for data analysis in social sciences and research (110). Due to licensing issues, the statistical analysis for the second and third research questions was performed using R studio, which is also a commonly utilized software for data analysis (111).



## Statistical analysis

### Research question 1

*What is the prevalence of the direct exposure to potentially traumatic events, high level of suicidal behavior, and social capital among individuals living in conflict-affected communities in Colombia?*

To address this first question a descriptive analysis was conducted. The dataset included variables such as gender, age, department, municipality, area (urban/rural), ethnicity, education level, occupation, and victim recognition. Descriptive statistics, including frequencies, percentages, and measures of central tendency (mean, median), were computed using IBM SPSS Statistics version 28 to provide a comprehensive overview of the population characteristics.

### Research question 2

*Is there an association between direct exposure to noninterpersonal and interpersonal traumatic events and high level of suicidal behavior?*

The second research question sought to explore the presence of a potential association between direct exposure to noninterpersonal and interpersonal PTEs and the likelihood of presenting high levels of suicidal behavior. To address this question, a two-step approach was employed involving both a Chi-Square test and a logistic regression analysis.

The initial step involved conducting a Chi-Square test to assess the relationship between trauma exposure and suicidal behavior. This statistical test examined the cross-tabulation of the two variables to determine whether an observed association existed. The Chi-Square test results provided initial insights into the potential connection between the variables, shedding light on any significant patterns or trends.

Subsequently, a logistic regression analysis was carried out using R Studio to offer a more comprehensive understanding of the relationship. The analysis was designed with a dichotomous measure of suicidal behavior as the dependent variable, distinguishing between low and high levels. This allowed for the examination of the influence of the exposure to noninterpersonal and interpersonal PTEs on the likelihood of presenting high levels of suicidal behavior. Additionally, since subjects are nested in areas and departments, these

variables were added, as well as gender and age. By employing a logistic regression model, the study could quantitatively assess the strength and direction of the relationship, while also accounting for potential confounding variables.

The outcomes of both the Chi-Square test and the logistic regression analysis contributed jointly to addressing the research question. The Chi-Square test provided initial evidence of an association, while the logistic regression analysis offered a more nuanced exploration of the relationship, considering various factors that might influence the results. This two-step approach strengthened the overall analysis, allowing for a more comprehensive understanding of the potential link between traumatic events exposure and heightened suicidal behavior risk.

### Research question 3

*Does social capital have an impact on the association between the direct exposure to noninterpersonal and interpersonal potentially traumatic events, and high level of suicidal behavior among individuals living in conflict-affected communities in Colombia?*

To address this question, a moderation analysis was conducted using logistic regression in R studio. The analysis specifically examined the potential impact of social capital on the relationship between exposure to noninterpersonal and interpersonal PTEs and engagement in suicidal behavior. The social capital variable was operationalized by utilizing the total score obtained from the SASCAT. The logistic regression model included main effects for exposure to PTEs and social capital, as well as their interaction term. This interaction term aimed to capture any significant changes in the effect of exposure to PTEs on suicidal behavior based on varying levels of social capital.

Prior to conducting the moderation analysis, assumptions were checked, including assessing multicollinearity between exposure to PTEs and social capital using Variance Inflation Factors (VIFs). This step ensured that the interaction effect could be accurately interpreted. Odds ratios and their corresponding confidence intervals were computed to assess the magnitude and significance of the relationship between the variables. The significance of the interaction term was of particular interest as it indicated whether social capital moderated the association between exposure to PTEs and suicidal behavior in the context of conflict-affected communities in Colombia.

## Ethical considerations

Ethical approval for the MHPCC project was granted by both the Ethics Committee of Universidad Externado and DIGNITY 's Ethics Committee. In the context of this particular investigation, ethical authorization was deemed unnecessary given its affiliation with the MHPCC initiative. Furthermore, respondents were informed that their participation was entirely voluntary and confidential. They signed a consent form in which the purpose of the project was addressed, as well as the possibility to withdraw from the study at any time. Moreover, due to the sensitivity of the subject, interviewers were trained to deal with any emotional discomfort caused by the study, and participants also had access to local mental health support if necessary.

## IV. Results

The overall study population consists of 4480 participants distributed across five departments in Colombia, with Bolívar, Cauca, and Meta each accounting for roughly 20% (N=914, 908 and 872 respectively) of the sample, Putumayo for 17,4% (N=778), and Tolima for 22,5% (N=1008). Table 4 displays the distribution of the study cohort among municipalities and departments.

*Table 4: Number of participants across municipalities in the MHPCC project (N=4480)*

Region	Department n (%)	Municipality	N	%
<b>Atlantica</b>	914 (20,4)	El Carmen de Bolivar	305	6,8
		Santa Rosa	367	8,2
		San Pablo	242	5,4
<b>Pacifica</b>	908 (20,3)	Buenos Aires	389	8,7
		Cajibío	130	2,9
		Guachene	388	8,7
<b>Oriental</b>	872 (19,5)	El Dorado	179	4
		Granada	393	8,8
		San Juan de Arama	301	6,7
		Orito	97	2,2
<b>Central</b>	778 (17,4)	Putumayo Mocoa	386	8,6
		San Francisco	295	6,6
		Chaparral	396	8,8

Table 4: Number of participants across municipalities in the MHPCC project (N=4480)

Region	Department n (%)	Municipality	N	%
	Tolima	Icononzo	381	8,5
	1008 (22,5)	Lerida	231	5,2

In regards to the characteristics of the participants (Table 5), it can be observed that the female population constitutes a significant majority, accounting for 73,6% (N=3269) of the sample, while the male population comprises 26,2% (N=1171). The sample exhibits a mean age of 45 years, ranging from 18 to 103 years, and the most common occupation is housekeeping, accounting for 44,7% (2001) of individuals.

The educational background of individuals in Colombia was categorized according to UNESCO's most recent International Standard Classification of Education (ISCED-11).(112) In accordance with the country's educational system, the category of below basic encompasses individuals whose highest level of education is preschool. The basic level of education includes individuals who have completed up to 9th grade in secondary school. The intermediate level refers to individuals who have achieved a technician degree, while the advanced educational level pertains to individuals who have obtained a technological degree or higher, including bachelor's, master's, or postgraduate degrees. Additionally, within the category of victim recognition, the inclusion of self-recognized victims include individuals who have been recognized as victims under the regulations of Law 1448,(85) as well as those who perceive themselves as having been affected by the armed conflict, irrespective of being officially recognized by the state.

Table 5: Demographic characteristics of participants the MHPCC, stratified by exposure to traumatic events

Characteristics	Traumatic events				Total (N=4480)	
	Not exposed (N=1695)		Exposed (N=2785)		% within total population	
Gender	N	%	N	%	N	%
Male	379	32,4	792	67,6	1171	26,2
Female	1310	39,7	1986	60,3	3296	73,6
Transgender	0	0,0	1	100	1	0,0
Other	3	42,9	4	57.1	7	0,2
Not answered					1	0,0
<b>Age</b>					<b>Range</b>	<b>Mean</b>
					18-103	45

Table 5: Demographic characteristics of participants the MHPCC, stratified by exposure to traumatic events

Characteristics	Traumatic events				Total (N=4480)	
	Not exposed (N=1695)		Exposed (N=2785)		% within total population	
	N	%	N	%	N	%
<b>Geographic area</b>						
Urban	1082	37	1839	63	2921	66,2
Rural	581	39	908	61	1489	33,8
<b>Ethnicity</b>	N	%	N	%	N	%
Indigenous	86	24,8	261	75,2	347	7,7
Gypsy/Roma	1	50	1	50	2	0,0
Roots from the archipelago of San Andrés and Providencia	0	0,0	1	100	1	0,0
Roots from San Basilio de Palenque	0	0,0	1	100	1	0,0
Black/mulato	171	18,7	742	81,3	913	20,4
None of the above	1358	44,3	1709	55,7	3067	68,5
Not answered	72	52,9	64	47,1	136	3
<b>Educational level</b>	N	%	N	%	N	%
Less than basic	44	33,8	86	66,2	130	3,1
Basic	686	36,4	1200	63,6	1886	45,2
Intermediate	667	39,5	1023	60,5	1690	40,5
Advanced	188	40,8	273	59,2	461	11
Not answered	5	83,3	1	16,7	6	0,1
<b>Occupation</b>	N	%	N	%	N	%
Working	665	40,3	985	59,7	1650	36,9
Searching for job	135	33,3	271	66,7	406	9,1
Studying	55	43,7	71	56,3	126	2,8
Housekeeping	752	37,6	1249	62,4	2001	44,7
Unable to work	26	16	137	84	163	3,6
Other	35	37,6	58	62,4	93	2,1
Not answered	20	58,8	14	41,2	34	0,8
<b>Victim recognition</b>	N	%	N	%	N	%
No victim	1173	51,9	1087	48,1	2260	50,6
Self-recognized victim	517	23,4	1691	76,6	2208	49,4
Not answered	1	50	1	50	2	0,0

## The prevalence of PTEs, suicidal behavior and social capital

This section focuses on the investigation of research question 1, which refers to the prevalence of direct exposure to PTEs, high levels of suicidal behavior, and social capital among individuals residing in conflict-affected communities in Colombia. According to the data presented in Table 6, the findings reveal that 4,5% (N=203) of the entire sample exhibit elevated levels of suicidal ideation. Furthermore, upon examining the data within specific departments, it is observed that the departments of Meta and Putumayo exhibit higher rates compared to the overall average, with percentages of 5,3% (N=46) and 6,9% (N=54) respectively.

*Table 6: Level of suicidal behavior sorted by departments in the study population (n=4480)*

Departament	Level of suicidal behavior			
	Low		High	
	N	%	N	%
<b>Bolivar</b>	878	96,3	34	3,7
<b>Cauca</b>	873	96,4	33	3,6
<b>Meta</b>	826	94,7	46	5,3
<b>Putumayo</b>	724	93,1	54	6,9
<b>Tolima</b>	970	96,4	36	3,6
<b>Total (% within departaments)</b>	4271	95,5	203	4,5

Furthermore, Table 7 presents the prevalence rates of exposure to PTEs and the associated types within the cohort under investigation. According to the data, a significant proportion of the sample (62,2%, N=2785) has been exposed to a PTE at some point in their lives. The Tolima region demonstrates a prevalence of PTE exposure that is lower than the average, as indicated by the report of only 22,9% (N=230) of the sample population experiencing such events. In contrast, the Putumayo region exhibits the highest prevalence rates, exceeding the mean by nearly a third. Specifically, 87% (N=677) of the individuals in the sample population residing in this area have reported experiencing at least one direct PTE over the course of their lifetimes. When examining the particular type of PTEs to which the sample was exposed, it was found that 47,1% (N=2108) of all participants reported exposure to a noninterpersonal PTE, while 15,1% (N=677) reported exposure to an interpersonal PTE, and 37,8% (N=1695) were not exposed to any. In this table, Tolima and Putumayo stand out again.

Specifically, Tolima exhibits the lowest prevalence of interpersonal PTEs compared to other departments, representing 6,3% (N=63) of the sample from Tolima. Conversely, Putumayo demonstrates the highest exposure rate, with 28,5% (N=222) of the department's sample reporting at least one interpersonal PTE throughout their lives.

Table 7: Prevalence of PTEs sorted by departments in the study population (n=4480)

Department	Exposure to potentially traumatic events				Type of potentially traumatic event			
	Not exposed		Exposed to any type		Noninterpersonal		Interpersonal	
	N	%	N	%	N	%	N	%
<b>Bolivar</b>	309	33,8	605	66,2	516	56,5	89	9,7
<b>Cauca</b>	162	17,8	746	82,2	590	65	156	17,2
<b>Meta</b>	345	39,6	527	60,5	380	43,6	147	16,9
<b>Putumayo</b>	101	13	677	87	455	58,5	222	28,5
<b>Tolima</b>	778	77,2	230	22,9	167	16,6	63	6,3
<b>Total (% within departamentos)</b>	1695	37,8	2785	62,2	2108	47,1	677	15,1

Additionally, Table 8 presents the distribution of direct exposure to PTEs, categorized as either experienced or witnessed. The occurrence of death-related events is regarded as exposed only when the individuals have directly witnessed the event. Moreover, Table 8 does not consider cumulative count of exposures, as multiple events have been experienced by multiple participants.

Table 8: Distribution of PTEs among the study population (n=4480)

Potentially traumatic event	Experienced		Witnessed		Total exposed	
	N	%	N	%	N	%
<b>Interpersonal</b>						
Physical assault	470	10,6	48	1,1	518	11,7
Assault with a weapon	278	6,2	48	1,1	326	7,3
Sexual assault	122	2,7	24	0,6	146	3,3
Other unwanted sexual experience	56	1,3	8	0,2	64	1,5
<b>Noninterpersonal</b>						
Natural disasters	1516	33,9	120	2,7	1636	36,6
Fire or explosion	235	5,3	89	2,1	324	7,4
Transportation accident	484	10,9	134	3,4	618	14,3
Serious accident	320	7,1	48	1,2	368	8,3
Exposure to toxic substances	332	7,5	26	0,6	358	8,1
Combat or exposure to war zone	927	20,8	33	0,9	960	21,7

Table 8: Distribution of PTEs among the study population (n=4480)

Potentially traumatic event	Experienced		Witnessed		Total exposed	
	N	%	N	%	N	%
Captivity	87	2	76	1,7	163	3,7
Life-threatening illness or injury	425	9,5	28	0,7	453	10,2
Severe human suffering	464	10,4	23	0,6	487	11
Sudden violent death	Does not apply		623	14	623	14
Sudden accidental death	Does not apply		392	8,8	392	8,8
Serious trauma, injury, or harm caused by you to someone else	35	0,8	28	0,7	63	1,5
Any other very stressful event or experience	349	8,5	35	1	384	9,5

Finally, the prevalence of social capital within the study population is displayed in Table 9. In the overall sample, 54,3% (N=2433) of participants demonstrate low levels of social capital, whereas 45,7% (N=2047) exhibit high levels of social capital. The departments exhibiting the highest levels are Putumayo and Meta, with 61,7% (N=480) and 54,2% (N=473) respectively. The table also presents the continuous measure of the social capital variable, which was recorded as 3.83 for the entire sample. The scale used for this variable ranges from 0 to 31 points, with the highest score obtained in this study being 23 points.

Table 9: Level of social capital sorted by departments in the study population (n=4480)

Department	Level of social capital				Continuous measure	
	Low		High		Mean	$\sigma$
	N	%	N	%		
<b>Bolivar</b>	542	59,3	372	40,7	3,51	1,64
<b>Cauca</b>	449	49,4	459	50,6	4,2	2,92
<b>Meta</b>	399	45,8	473	54,2	3,98	2,04
<b>Putumayo</b>	298	38,3	480	61,7	4,71	2,68
<b>Tolima</b>	745	73,9	263	26,1	2,98	1,28
<b>Total (% within departments)</b>	2433	54,3	2047	45,7	3,83	2,25

The frequency of the responses of the SASCAT is presented in Table 10. The first five rows show the five dimensions of social capital that are measured on the scale. The final two rows of the data also demonstrate an alternative method to reviewing the scale, employing a more general perspective that considers the structural and cognitive components of social capital. The complete scale and items can be found in appendix C.



Table 10: SASCAT's response frequencies, stratified by social capital dimensions. (N=4480)

Item #	SASCAT items Category	Response range	Frequencies			
			0	1	2	3+
1	Group Membership	0-8	60,9% (2293)	33,2% (1250)	4% (152)	1,9%(71)
2	Support from groups	0-8	85,4% (3809)	12,6% (564)	1,5% (66)	0,5% (21)
3	Support from individuals	0-9	46,4% (2073)	31,4% (1404)	11,8% (529)	10,4% (459)
4 and 5	Citizenship activities	0-2	83,9% (3760)	7,2% (323)	8,9% (397)	Does not apply
6-9	Cognitive social capital	0-4	6,3% (282)	6,3% (283)	60,8% (2726)	26,5% (1189)
1-5	Structural social capital	0-27	34,1% (1529)	27,8% (1247)	17,5% (708)	20,6% (996)

### Factors associated with suicidal behavior

This section addresses the second research question of the current study, which aims to investigate if there exists an association between direct exposure to noninterpersonal and interpersonal PTEs and an increased tendency to engage in suicidal behavior. In this specific analysis, covariates are being controlled, and a total of 98 out of the 4480 responses were removed due to missing data.

In this study, a high level of suicidal behavior was found in 4,5% (N=203) of the population. Table 11 shows the distribution based on the exposure to PTE. Additionally, in the chi-square test examining the association between the exposure to PTEs and high suicidal behavior, a significant result was observed ( $\chi^2 = 175,000$ ,  $df = 2$ ,  $p < 0.001$ ).

Table 11: Prevalence of high suicidal behavior associated with the exposure to PTEs

Type of event	Low		High		Total	
	N	%	N	%	N	%
Not exposed	1617	98,6	23	1,4	1640	100
Noninterpersonal	2072	96	86	4	2158	100
Interpersonal	582	86,1	94	13,9	676	100
Total	4271	95,5	203	4,5	4474	100

This study successfully identified a correlation between the two variables under investigation, even when adjusted to account for the effects of the other variables in the model. Specifically,

it was observed that individuals who were exposed to noninterpersonal PTEs exhibited a significant increase in the likelihood of engaging in suicidal behavior in comparison to those who had not encountered any PTEs (OR=3.37, CI 95% 2.09 - 5.62,  $p \leq 0.001$ ).

Nevertheless, the exposure to interpersonal PTEs had an much greater increase in the likelihood having higher risk of engaging in suicidal behavior compared to individuals who only have been exposed to noninterpersonal PTEs (OR=11.37, CI 95% 7 - 19.05,  $p \leq 0.0001$ ).

Along with the exposure to PTEs, it was found that demographic factors played a significant role in the likelihood of engaging in suicidal behavior. The department of residence, for example, identified Bolivar as the reference category for the model, as it did not demonstrate significant relevance for inclusion in the analysis. Moreover, it was demonstrated that the departments of Cauca (OR=0.98, CI 95% 0.58 - 1.66,  $p > 0.05$ ) and Putumayo (OR=1.41, CI 95% 0.89 - 2.26,  $p > 0.05$ ) did not exhibit a statistically significant impact on the increased inclination to engage in suicidal behavior when compared to Bolivar. While the departments of Meta (OR=1.61, CI 95% 1 - 2.61,  $p \leq 0.05$ ) and Tolima (OR= 2.45, CI 95% 1.43 - 4.18,  $p \leq 0.001$ ) exhibit considerable effects on the increased likelihood of engagement in suicidal behavior in comparison to Bolivar.

Another demographic element that has been identified as being linked with a greater probability for engaging in suicide behavior is gender. The analysis conducted in this study indicates that women exhibit a considerably elevated likelihood of engaging in suicidal behavior when compared to men (OR=1.78, CI 95% 1.23 - 2.65,  $p \leq 0.01$ ). Furthermore, residing in urban areas (OR=1.62, CI 95% 1.14 - 2.33,  $p \leq 0.05$ ), and age (OR=0.97, CI 95% 0.96 - 0.98,  $p \leq 0.0001$ ) were found to be significantly correlated with an elevated likelihood of engaging in suicidal behavior.

### The effect of social capital

This section corresponds to the third research question, which seeks to determine whether social capital influences the relationship between direct exposure to noninterpersonal and interpersonal PTEs and the prevalence of suicidal behavior among individuals living in conflict-affected communities in Colombia. In this analysis, a total of 28 out of the 4480 responses were excluded from the dataset due to missing values.

The examination of the interaction between noninterpersonal PTEs and social capital revealed an OR of 0.82 (95% CI: 0.66-1.06,  $p \geq 0.05$ ). The confidence interval includes 1, indicating a non-significant result. This suggests that there is no conclusive evidence of a moderation effect by social capital on the relationship between exposure to noninterpersonal PTEs and the likelihood of high suicidal behavior.

For the interaction between interpersonal PTEs and social capital, the calculated odds ratio was 0.87 (95% CI: 0.71-1.11,  $p \geq 0.05$ ). Similar to the noninterpersonal PTEs analysis, the confidence interval encompasses 1, indicating a lack of statistical significance. Consequently, the results do not support the presence of a significant moderation effect by social capital on the relationship between exposure to interpersonal PTEs and the probability of exhibiting high symptoms of suicidal behavior.

## V. Discussion

The main objective of this study was to examine the impact of social capital on the direct exposure to interpersonal PTEs and the prevalence of suicidal behavior among individuals living in conflict-affected communities in Colombia. Through the implementation of a rigorous analytical methodology, it was possible to identify the level of suicidal behavior, exposure to PTE, and social capital within the sample population, as well as establish the interconnections between these variables. This section centers on the main findings derived from the research and explores their implications for understanding the psychological consequences of living in a setting affected by conflict.

### Description of PTEs, suicidal behavior, and social capital

#### Potentially Traumatic Events

In relation to the occurrence of PTE within the sample, the findings indicate that 62,2% of the entire population have either directly experienced or witnessed a PTE. The prevalence of PTEs varies across different departments, ranging from 22,9% to 82,2%. This information aligns with prior research findings, as experts have indicated that the global prevalence of

PTEs can go from 70% and up to 90% (5,6). Tolima exhibits the lowest incidence of exposure to PTEs, reflected by only a 22.9% rate. This observation is intriguing, particularly in light of the department's extensive historical association with armed groups (12). Moreover, upon closer examination of the municipalities (see Appendix E), it becomes evident that Iconizo, in Tolima has the lowest rate of exposure to PTEs among the entire group of municipalities, standing at 7,3%. This relatively low rate could potentially be attributed to recollection bias among the survey respondents or a fear of any possible repercussions associated with expressing their experiences (14). These findings emphasize the importance of establishing a sense of safety and security for study participants to encourage their active involvement.

The exposure rates of the remaining four departments exhibit a higher level of consistency, ranging from 60,4% to 87%, with Putumayo exhibiting the highest prevalence among the departments. Nevertheless, upon examining the municipality level, it appears that Buenos Aires in Cauca has the highest prevalence of exposure to PTEs, since 92.3% of its population has reported encountering at least one throughout their lifetime. This particular department is widely recognized as being among the most economically disadvantaged regions in the entire country, as evidenced by the fact that 50.5% of its population lives in such circumstances (94). The observed high prevalence of PTEs may be attributed to the association between higher levels of income and education and an increased risk of suffering PTEs, as compared to persons with lower levels of income and education within the same geographical area (6,53). Nevertheless, Cajibío and Guachene, both located in the same department, demonstrate a prevalence of 69.2% and 76.3% respectively. This data highlights Buenos Aires as the municipality with the highest frequency, not only within the department of Cauca but also among the entire sample. This phenomenon may be attributed not only to the limited income levels, but also to the ongoing interactions with armed organizations over the years, owing to its geographical advantage in terms of gold reserves and suitability for cultivating narcotic substances (12).

Another notable distinction in this study is the overall exposure rate observed in the sample. The findings indicate that 62.2% of the participants had experienced at least one PTE, which is in line with previous studies in the general population (5,6), however it stands in contrast to the 40.8% revealed in Colombia's Mental Health survey conducted in 2015 (15). However, it

is possible that the differences observed between the National Mental Health Survey (15) and the current sample can be attributed to the distinct methodologies employed. The national survey included all municipalities and departments across the country, whereas this study exclusively focused on municipalities that experienced varying degrees of effects from the armed conflict.

In relation to the encounters of specific PTEs, the data indicates that natural catastrophes were the most prevalent occurrence, affecting 36.6% of the surveyed population. Following this, combat or exposure to warzone was identified as the second most frequent event, reported by 21.7% of the respondents. These findings deviate significantly from prior research conducted among the general population (5), when exposure to war zones was reported as one of the least frequent events. Nevertheless, within the context of armed conflict, the most frequent types of PTEs involve crossfire, abuse, and assaults (75). And considering the unique characteristics of the sample in this study, it appears reasonable that exposure to war zones emerges as one of the most prevalent events in this particular group.

Furthermore, in this sample, it was observed that interpersonal events constituted 15,1% of the participants, which is slightly lower than the global average of approximately 18,8% (54). However, in conflict-affected communities, these rates can range from 4% to 39,7% (80). The variations in these numbers can be attributed to the varying views adopted by academics when examining interpersonal events. Some scholars use a broader approach, including any event involving a third person within the concept of interpersonal events (54,59). In contrast, others adopt a more selective approach, considering only specific events to be included within this category (59). Therefore, it is possible that the prevalence reported in this study is lower due to the specific framework employed, which only classified four events as interpersonal.

Additionally, within the five most prevalent PTEs, only one event falls under the interpersonal category, specifically physical assault with 11,7% reporting it. Conversely, among the five least frequent events, the remaining three events in the interpersonal classification are reported, specifically unwanted sexual experience (1,5%), sexual assault (3,3%), and assault with a weapon (7,3%). The prevalence rates reported in this study exhibit notable disparities when compared to previous research conducted in conflict settings, where

the occurrence for women range from 17,8% to 39,7%, and between 4% and 23,6% for men (80).

### Suicidal behavior

In regards to suicidal behavior, the results indicate that overall, 4,5% of the participants in the study exhibit an increased tendency for engaging in suicidal behavior. Putumayo exhibits the highest frequency among all the departments, with a rate of 6,9%. Conversely, Cauca and Tolima demonstrate the lowest number, both recording a rate of 3,6%. The communities of El Dorado in Meta and Chaparral in Tolima demonstrate the highest levels, with 8,4% of respondents in each municipality. These numbers are consistent with the findings from previous research, which have indicated that the prevalence of suicidal behavior in the general population might vary between 4,1% and 9,3% (3). Moreover, they are still within the range found in studies conducted in conflict settings, with reported prevalence rates going from 3,72% to 14,8% (48).

### Social capital

The social capital of the total sample was found to be relatively low, with a score of 3.83 out of a maximum possible score of 31. The distribution of scores is shown in Appendix D, which reveals that the maximum score achieved in this study was 23 points. In the context of this research, the social capital score was categorized as either low or high. However, it is important to note that these labels are solely applicable within the scope of this study and are not a guarantee of high or low social capital in comparison to other populations globally.

In this study, the items of the SASCAT addressing support (items 1, 2 and 3) were largely unselected, meaning that over half of the sample does not get help or support from any of the groups mentioned in the tool. Nevertheless, this response may be influenced by the limited validity and adaptability of the scale within this particular population. De Silva et al. (68) conducted an in-depth cognitive validation study of the SASCAT in Vietnam and Peru, revealing similar limitations. Specifically, the respondents exhibited difficulty in distinguishing between the different types of support mentioned in the respective items, and there was considerable variability in the interpretations among participants within the same community.

Additionally, a comparative study on maternal social capital conducted in Peru, Vietnam, and Ethiopia revealed that 14,1%, 29,1%, and 41,5% of mothers in each respective country have actively engaged in citizenship activities (106). The data presented in this sample reveals a similar pattern to the case of Peru, where just 16,1% of the population under investigation participated in these activities. These similarities with Peru may be attributed to their geographical and cultural affinities, which are potentially stronger than those shared by Vietnam and Ethiopia. It is possible that both Peru and Colombia share comparable structures of community leadership, wherein the burden of civic activities is not only placed on individual residents.

Moreover, this research highlights the prevalence of the cognitive social capital in this population, as 93,7% of the participants recognized having at least one item assessing this category. This finding suggests that the sample exhibits a substantial number and wide range of interpersonal connections, indicating trust, social harmony, sense of belonging and sense of fairness (68). The results obtained by this population are way more than expected, exceeding those found in the research conducted in Peru (36,5%), Vietnam (83,7%) and Ethiopia (86,4%) (106). In conclusion, the findings of this sample indicate a comparatively low level of social capital overall. However, upon closer examination of cognitive social capital, the levels identified are higher than those reported in previous research within low and middle income countries.

### Exposure to PTEs and suicidal behavior

The implications and interpretations of the findings in relation to the connection between exposure to noninterpersonal and interpersonal PTEs, and increased likelihood of engaging in suicidal behavior in the study population will be examined in this section.

#### Noninterpersonal PTEs

The findings of the investigation indicate a statistically significant correlation between firsthand encounters and witnessing noninterpersonal PTEs, and a higher probability of getting involved in suicidal behavior. The results indicate that those who experienced noninterpersonal PTEs have a significantly higher likelihood of engaging in suicidal behavior, with an odds ratio (OR) of 3.377 (CI 95% 2.093 - 5.622,  $p < 0.001$ ). This shows

that the risk of suicidal behavior is more than three times greater for individuals exposed to noninterpersonal PTEs compared to those who have not encountered such events. This is consistent with previous research that suggest that being exposed to PTEs may have major consequences on an individual's psychological and emotional well-being, leading to long-lasting emotional distress (53) and heightened vulnerability to physical, mental and emotional challenges, including suicidal ideation and attempts (5,54,55). These results highlight the relevance of identifying and addressing the emotional repercussions of these events, especially within conflict communities, where the prevalence of PTEs seems to be higher than the rest of the population.

#### Interpersonal PTEs

Additionally, there is a considerably stronger impact of exposure to interpersonal PTEs on experiencing high levels of suicidal behavior. The results demonstrate a statistically significant odds ratio (OR=11.372, CI 95% 7.006 - 19.053,  $p \leq 0.0001$ ), indicating that persons who have experienced interpersonal PTEs, specifically events related to physical assault, assault with a weapon, sexual assault, and other unwanted sexual experiences, are more than eleven times more likely to exhibit suicidal behavior compared to individuals who have only experienced noninterpersonal PTEs. The important disparity in the magnitude of the effect of exposure to PTEs demonstrates the powerful impact of interpersonal trauma. Due to the inherent characteristics of these events, they are recognized for having the potential to influence a person's vulnerability and cause negative effects on their self-image, resulting in emotional instability and a higher probability of experiencing recurrent PTEs (23,59). Therefore, the findings of this study are consistent with previous research that supports the belief that interpersonal trauma, in comparison to noninterpersonal trauma, exhibits a stronger association with suicidal behavior outweighing psychiatric disorders including PTSD and depression (33).

#### Additional findings

While this study primarily focused on exploring the association between direct exposure to traumatic events and suicidal behavior, several covariates emerged as statistically significant in this analysis. These variables include living in the departments of Meta and Tolima, gender, residing in urban areas, and age. Future research should consider how these variables interact with trauma exposure to influence suicidal behavior. Although prior studies have



explored the influence of age and gender on the possibility of being involved in suicidal behavior (37), there is a need to investigate the multiple risk factors that emerge when considering the combination of geographical dynamics with traumatic exposures and suicidal behavior.

### Implications

This study makes a valuable contribution to the overall understanding of the association between trauma and suicidal behavior, and are compatible with established theories such as The Interpersonal Theory of Suicide (32). The theory places significant weight on the role of interpersonal factors, which aligns with the findings that interpersonal traumatic events have a significantly greater influence on the probability of suicide behavior. Moreover, the findings of this study suggest that there is a possible demand to improve or expand current theoretical frameworks in order to more effectively incorporate the complex dynamics of trauma within contexts affected by conflict. Furthermore, the research findings indicate an urgent need for mental health professionals working in conflict-ridden communities to have a full grasp of the diverse impacts of PTEs on a person's mental state. This knowledge is essential for effectively implementing tailored interventions that successfully address both types of trauma, hence improving individuals' quality of life and reducing the risk of suicide among those exposed to any form of PTE. In addition, it is important for leaders and organizations committed to mitigating mental health issues in conflict settings to allocate sufficient resources towards the development of thorough initiatives that incorporate trauma-focused interventions and community support systems.

### Hypothesis

*Hypothesis 1: There is a positive correlation between potentially traumatic events and an increase in suicidal behavior*

These results provide substantial proof supporting the hypothesis assuming a positive association between PTEs and a greater likelihood to engaging in suicidal behavior. The findings of the study indicate that both noninterpersonal and interpersonal PTEs are correlated with a notable rise in the levels of suicidal behavior. Of particular relevance is the significantly elevated risk reported in persons who have experienced interpersonal PTEs. These findings highlight the association between PTEs and vulnerability to suicidal behavior, therefore confirming the validity of the initial hypothesis.

## The effect of social capital

The main goal of the third objective in this research is to examine the potential influence of social capital on the association between direct exposure to noninterpersonal and interpersonal PTEs and the manifestation of high levels of suicidal behavior within conflict-affected communities in Colombia. This study employed a moderation analysis to investigate the possible effect of social capital on the observed associations.

The interaction analysis between noninterpersonal PTEs and social capital, yielding odds ratios of 0.82 (95% CI: 0.66-1.06,  $p \geq 0.05$ ), suggests a potential but not statistically significant effect. Similarly, for interpersonal PTEs and social capital, the odds ratio of 0.87 (95% CI: 0.71-1.11,  $p \geq 0.05$ ) highlights a trend toward a moderating role of social capital in the link between trauma exposure and suicidal behavior. However, these effect sizes are relatively modest and fail to achieve statistical significance. This points to the need for adopting a more in-depth approach in analyzing these variables, indicating the presence of a multifaceted interaction that needs additional investigation.

The existing evidence has demonstrated a clear and positive connection between social capital and a range of health outcomes, including mental health (8,67,71). These findings provide a foundation for exploring the potential impact of social capital in addressing challenges with mental health that result from exposure to trauma. The potential of social capital to provide a network of support that assists in dealing with stressors (24) has been suggested as a potential mechanism that could mitigate the influence of trauma on suicidal behavior. Nevertheless, it is essential to partake in a thorough examination of the study's narrow focus and its wider implications in relation to the current amount of research.

While the Interpersonal Theory of Suicide (32) offers a theoretical framework that aligns with the observed connections, it is crucial to examine this study's limitations in capturing the intricate interplay of suicidal desire, capability, and acquired capacity. The practical implementation of the theory requires an in-depth understanding of individual intricacies, which may not be entirely captured by the statistical analysis conducted in the study. Furthermore, while social capital may provide a sense of belonging that counteracts certain aspects of the theory, it is important to recognize that the association between trauma and suicidal behavior is multifaceted and influenced by several factors, including psychiatric

disorders and personality (44).

This study's focus on conflict-affected communities in Colombia is crucial for acknowledging the unique obstacles encountered by these populations. The frequent occurrence of traumatic experiences, combined with persistent stress and restricted access to mental health resources, highlights the pressing need for effective interventions. However, it is important to avoid exaggerating the potential reduction in suicidal behavior by only attributing it to social capital. The role of sociodemographic variables, cultural norms, and individual coping mechanisms should not be ignored in the onset of mental health outcomes.

### Implications

The findings of the investigation highlight the complex dynamics of social capital's involvement in the connection between exposure to trauma and the occurrence of suicidal behavior in communities affected by conflict. The discussion supports the implementation of an integrative approach to mental health interventions, emphasizing the relevance of taking into account individual characteristics, cultural practices, and availability of resources. Moreover, this study places significant emphasis on the practical aspects of crisis response preparedness and the integration of mental health support within growth and development efforts, and involves the allocation of resources and recognition of mental health as a fundamental component of community resilience. Within the field of research, there is a demand for additional investigation into contextual factors and the qualitative examination of individuals' life experiences. Overall, this study adds to the understanding of mental health challenges faced by conflict-ridden environments, and encourages the development of comprehensive strategies for intervention and policy-making that are adapted to this particular scenario.

### Hypothesis

*Hypothesis 2: Greater levels of social capital will serve as a moderator weakening the positive correlation between exposure to potentially traumatic events and high levels of suicidal behavior.*

The findings from the moderation analysis indicate that for the interaction involving

noninterpersonal PTEs and social capital, the OR calculated is 0.82 (95% CI: 0.66-1.06), with a p-value greater than 0.05. Similarly, the interaction between interpersonal PTEs and social capital yields an OR of 0.87 (95% CI: 0.71-1.11), with a p-value also exceeding 0.05. These results suggest a tentative trend toward social capital potentially playing a moderating role in diminishing the link between PTEs and suicidal behavior. However, due to the non-significant p-values, the evidence is currently insufficient to definitively affirm the hypothesis. Further research, possibly with a larger sample size or alternative methodologies, is warranted to establish the significance of this moderation effect conclusively.

### Limitations and recommendations

A distinctive feature of this study lies in the comprehensive representation of departments, as the sample size was sufficient to provide a robust overview of the individuals most impacted within the five included departments in Colombia. Nevertheless, it is important to acknowledge that this particular study design comes with a number of limitations.

Although the sample size is significant it does not adequately reflect the municipalities and departments under consideration. In particular there are a total of 15 municipalities, out of which 10 are categorized as having a high level of conflict, while the remaining 5 are classified as having a moderate level of conflict. Furthermore, there is a discrepancy in the sample sizes throughout the various municipalities. For instance, Orito in Putumayo had a relatively small sample size of just 97 participants, whereas Chaparral in Tolima had a significantly larger sample size of 396 participants, which is more than four times the size of Orito's sample.

Moreover, this investigation does not account for psychopathological diagnoses, which have been identified as a major contributor in the onset of suicidal behaviors. In addition, although the scales utilized in this study had been previously translated and adapted for a Latin American context, they had not been adjusted specifically to the Colombian context, which may have contributed to different biases. Moreover, there is variation in the time frame for examination across the scales. For instance, the SASCAT assesses social capital based on experiences within the past 12 months, whereas the Okasha Suicidality Scale and the LEC-5 examine occurrences that have taken place throughout an individual's lifetime. Furthermore, all three variables (exposure to PTEs, suicidal behavior, and social capital) are reliant on

retrospective and subjective self-reporting. Hence, it is possible that the data could be influenced by both individual and cultural biases. Specifically, recall bias may be a factor, along with cultural bias resulting from the sensitivity of the topic, or by the absence of any adjustments made based on the particular department or municipality.

Additionally, in the assessment of trauma a significant limitation arises from considering direct exposure as a combination of directly experiencing and witnessing a PTE, as this approach fails to differentiate individuals who have only witnessed a PTE and those who have experienced it. Also, the level of exposure referred to as "heard about" on the LEC-5 scale was excluded from the analysis, which prevented the identification of any potential impact it may have on the outcome variable. Moreover, this study does not account for the frequency accumulation of traumatic events, a factor that may influence an individual's emotional well-being. Furthermore, with the current classification and analysis of PTEs, the potential psychological suffering that may have been caused by a given event is not being taken into consideration, as the LEC-5 does not incorporate this factor into its framework. Additionally, certain non-personal incidents may be caused by interpersonal events, as exemplified by a weapon assault (interpersonal) resulting in a life-threatening injury (non-personal). In this instance, it is impossible to ascertain causality between two events.

Another significant limitation is related to the evaluation of social capital. Due to the absence of established guidelines for the SASCAT, a cutoff point was arbitrarily determined to categorize the population into low and high social capital groups. However, this approach may not accurately reflect the true nature of social capital, potentially introducing bias and compromising the validity of the findings. In order to enhance the accuracy of future research projects it is recommended to employ an alternative measure for assessing social capital. This alternative instrument should incorporate predetermined limits to reduce the influence of potential biases. Furthermore, the analysis of social capital conducted in this study was characterized by a broad approach. In future research, it is recommended to dig deeper into the various dimensions that constitute social capital, including structural and cognitive aspects, as well as to consider the two distinct types of connections within social capital, namely bonding and bridging. Lastly, the analysis does not account for missing values, potentially introducing a non-response bias. This bias may arise from participants choosing

not to answer sensitive questions, such as those related to suicidal behavior, thereby affecting the nature of the research findings.

### Implications for the field of global health

This study has significant implications for global health and has the potential to influence mental health interventions and policies. This research generates evidence-based knowledge that can be used to develop interventions, support strategies, and policies aimed at improving mental well-being in conflict-affected communities globally. The importance of addressing mental health needs in these populations is emphasized, as it contributes to the broader objective of improving global mental health outcomes and alleviating the burden of mental illness in vulnerable communities.

Moreover, the results of this study point out the urgent need for improved mental health resources and support in areas affected by conflicts. The high occurrence of trauma and its correlation with suicidal behavior presents an alarming call for policymakers and donors in the field of global health to prioritize mental health services within the context of humanitarian interventions. The allocation of resources and investment in mental health infrastructure are crucial in order to ensure the accessibility of proper care and support to individuals who struggle with the psychological consequences that result from conflict. Additionally, this research improves the understanding of trauma and the impact of social capital on mental health outcomes. As a result, it allows researchers and professionals to develop more effective and specialized policies and programs. Understanding the importance of social capital can be used to create community-driven interventions. This approach focused on the community not only helps with current mental health needs, but also develops lasting coping strategies that promote long-term well-being. Also, the research findings serve as a valuable resource for policymakers and healthcare providers across different regions facing similar circumstances. Through the diffusion of these findings and the promotion of knowledge exchange, stakeholders in the field of global health have the opportunity to gain insights from effective interventions and adapt their approaches based on the particular cultural, social, and political contexts of different communities, facilitating the adaptation of evidence-based practices, and resulting in improved effectiveness in mental health care.

Finally, the findings of this study have broader implications for global health, and are not just limited to those communities in Colombia that are affected by conflict. This research contributes to the development of evidence-based knowledge and insights. This helps guide more specific and effective interventions, policies, and support strategies in similar contexts globally. The urgent need to prioritize mental health resources in regions affected by conflicts is evident, and by including mental health in humanitarian efforts, professionals in global health can work towards improving the well-being of vulnerable populations. Moreover, the findings of this study improve the understanding of trauma and the impact of social capital on mental health. This knowledge can assist in the development of interventions that are suitable for specific contexts, promoting healing and individual growth during challenging circumstances.

## VI. Conclusion

This research provides an understanding of a complex interaction between direct exposure to PTEs, high levels of suicidal behavior, and social capital within conflict-affected communities in Colombia. Through the examination and exploration of the research topics first presented in this study, the findings have made a substantial contribution to the current body of knowledge within the domains of psychology, trauma studies, and global health.

The prevalence of direct exposure to PTEs within these conflict-affected communities has been revealed through comprehensive data collection and analysis. The findings highlight the significant impact of both noninterpersonal and interpersonal traumatic events on the likelihood of high suicidal behavior. This emphasizes the importance of implementing targeted interventions and support mechanisms that specifically target the particular consequences associated with different forms of traumatic experiences

Furthermore, the examination of the role of social capital within this particular context represents an innovative component in this research. Although the moderation effect of social capital on the association between direct exposure to PTEs and high levels of suicidal behavior did not reach statistical significance, it is important to acknowledge that social

capital continues to play a crucial role in promoting community resilience and overall well-being. Moreover, the prevalence of cognitive social capital in this sample indicates the potential of community-level interventions employing preexisting networks and resources to enhance mental health support.

It is important to recognize the limitations of this study, which include the focus on specific geographical areas in the country, and the method in which the scales were operationalized. These limitations suggest avenues for future research, such as comparative studies that encompass broader regional contexts, and exploring alternative methodologies to enhance the accuracy and validity of subsequent studies.

This study highlights the importance of implementing comprehensive programs for mental health in communities affected by conflict. These initiatives should not only focus on providing trauma-informed care but also on promoting social capital to strengthen community resilience. By addressing these multifaceted dimensions, policymakers, practitioners, and researchers can work collaboratively to mitigate the impact of traumatic experiences and reduce the incidence of suicidal behavior. This will ultimately contribute to the development of a stronger and more supportive environment for individuals living in conflict-affected communities throughout Colombia and across Latin American



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## VIII. Appendices

### Appendix A: The DSM-5 Life Events Checklist (LEC-5)

Table 12: The adapted version of The DSM-5 LEC-5 (101)

Event	Happened to me	Witnessed it	Learned about it	Part of my job	Not exposed
Natural disaster (for example, flood, hurricane, tornado, earthquake)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire or explosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transportation accident (for example, car accident, boat accident, train wreck, plane crash)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serious accident at work, home, or during recreational activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exposure to toxic substance (for example, dangerous chemicals, radiation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other unwanted or uncomfortable sexual experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Combat or exposure to a war-zone (in the military or as a civilian)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Life-threatening illness or injury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Severe human suffering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sudden violent death (for example, homicide, suicide)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sudden accidental death	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serious injury, harm, or death you caused to someone else	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any other very stressful event or experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix B: The Okasha Suicidality Scale

Table 13: The english translation of the Okasha Suicidality Scale (105)

<b>Item #</b>	<b>Item</b>	<b>Response options</b>	<b>Coding</b>
		Never	0
1	Have you ever thought that life is not worth living?	Hardly ever	1
		Sometimes	2
		Many times	3
2	Have you ever wished you were dead?	Never	0
		Hardly ever	1
		Sometimes	2
		Many times	3
3	Have you ever thought about ending your life?	Never	0
		Hardly ever	1
		Sometimes	2
		Many times	3
4	Have you tried to commit suicide?	0	0
		1	1
		2	2
		3 or more	3



## Appendix C: The Adapted Social Capital Assessment Tool (SASCAT)

Table 14: The SASCAT (68)

Question	Response options	Coding
<i>Group membership items</i>		
1. In the last 12 months have you been an active member of any of the following types of groups in your community?	Work related group/trade union Community association/co-op Women's group Political group Religious group Credit/funeral group Sports group Other: specify	Score between 0 and 8
<i>Support from groups</i>		
2. In the last 12 months, did you receive from the group any emotional help, economic help or assistance in helping you know or do things?	Work related group/trade union Community association/co-op Women's group Political group Religious group Credit/funeral group Sports group Other: specify	Score between 0 and 8
<i>Support from individuals items</i>		
3. In the last 12 months, have you received any help or support from any of the following, this can be emotional help, economic help or assistance in helping you know or do things?	Family Neighbours Friends who are not neighbors Community leaders Religious leaders Politicians Government officials/civil service Charitable organizations/NGO Other: specify	Score between 0 and 9
<i>Citizenship activities items</i>		
4. In the last 12 months, have you joined together with other community members to address a problem or common issue?	No/Yes	0 = No 1 = yes
5. In the last 12 months, have you talked with a local authority or governmental organization about problems in this community?	No/Yes	0 = No 1 = yes
<i>Cognitive social capital items</i>		
6. In general, can the majority of people in this community be trusted?	No/Yes	0 = No 1 = yes

Table 14: The SASCAT (68)

Question	Response options	Coding
7. Do the majority of people in this community generally get along with each other?	No/Yes	0 = No 1 = yes
8. Do you feel as though you are really a part of this community?	No/Yes	0 = No 1 = yes
9. Do you think that the majority of people in this community would try to take advantage of you if they got the chance?	No/Yes	1 = No 0 = yes

## Appendix D: Binary measure for the SASCAT

A detailed analysis was performed on the data collected by the SASCAT instrument, with the objective of determining an optimal cutoff for the scores within this particular sample. Table 15 displays the distribution of scores across the population, ranging from 0 to 23 points, with a significant majority of the sample, specifically 90.1%, obtaining a score of 6 points or lower.

The findings revealed that almost half of the population, specifically 54.3%, obtained a score of 3 or below on the scale. This particular criterion appeared to be an acceptable criteria for dividing the population into two relatively equal halves. Therefore, individuals were categorized as having low social capital if their score was 3 or less, and those with a score of 4 or higher were seen as having high social capital. Thus a score of 3 or less was defined to classify individuals as having low social capital, while those with a total score of 4 or higher were classified as having high social capital. The implementation of this binary categorization approach facilitated further analysis, allowing the emergence of the variable for low and high social capital.

To determine if the distribution of scores on the scale was evenly spread throughout all scale items, a 2-way table analysis was conducted. This study was motivated by the observation that the first three items of the scale accounted for 25 out of the 31 possible points, potentially indicating a disproportionate weighting towards these first questions. Nevertheless, it was found that the individuals that scored in one of the first items did not necessarily scored on the remaining two items. The results were as follows: The percentage of individuals who obtained a score on both the first and second items was 33.6%. In contrast, the proportion of

participants who obtained a score on both the first and third items was 64.3%. Furthermore, the percentage of individuals who scored on both the second and third items was 21.6%.

*Table 15: Distribution of total scores of SASCAT*

<b>Total Social Capital</b>			
<b>Score</b>	<b>N</b>	<b>%</b>	<b>Cumulative %</b>
0	121	2,7	2,7
1	148	3,3	6
2	930	20,8	26,8
3	1234	27,5	54,3
4	758	16,9	71,2
5	544	12,2	83,4
6	300	6,7	90,1
7	171	3,8	93,9
8	96	2,1	96
9	65	1,5	97,5
10	35	0,8	98,3
11	29	0,6	98,9
12	12	0,3	99,2
13	11	0,2	99,4
14	12	0,3	99,7
15	3	0,1	99,8
16	3	0,1	99,9
17	3	0,1	100
18	2	0	100
19	1	0	100
22	1	0	100
23	1	0	100
<b>Total</b>			100

## Appendix E: Prevalence of PTEs, suicidal behavior and social capital within municipalities

Table 16: Prevalence of PTEs, suicidal behavior and social capital within municipalities

		Type of potentially traumatic event								Suicidal behavior		Social capital					
		No exposure		Non-Personal		Interpersonal		Any exposure		Increased		Low SC		High SC		Continuous measure	
Department (N)	Municipality (N)	N	%*	N	%*	N	%*	N	%*	N	%*	N	%*	N	%*	Mean	$\sigma$
	El Carmen de Bolivar (305)	105	34,4	189	62	11	3,6	200	65,6	8	2,6	95	31,1	210	68,9	4,43	1,68
Bolivar (914)	San Pablo (242)	65	26,9	129	53,3	48	19,8	177	73,1	15	6,2	186	76,9	56	23,1	2,84	1,55
	Santa Rosa (367)	139	37,9	198	54	30	8,2	228	62,1	11	3	261	71,1	106	28,9	3,2	1,3
	<b>TOTAL (% within department)</b>	<b>309</b>	<b>33,8</b>	<b>516</b>	<b>56,5</b>	<b>89</b>	<b>9,7</b>	<b>605</b>	<b>66,2</b>	<b>34</b>	<b>3,7</b>	<b>542</b>	<b>59,3</b>	<b>372</b>	<b>40,7</b>	<b>3,51</b>	<b>1,64</b>
	Buenos Aires (389)	30	7,7	260	66,8	99	25,4	359	92,3	26	6,7	159	40,9	230	59,1	5,17	3,52
Cauca (908)	Cajibío (130)	40	30,8	75	56,9	16	12,3	91	69,2	4	3,1	63	48,5	67	51,5	3,81	1,72
	Guachene (388)	92	23,7	255	65,7	41	10,6	296	76,3	3	0,8	227	58,5	162	41,5	3,34	2,19
	<b>TOTAL (% within department)</b>	<b>162</b>	<b>17,8</b>	<b>590</b>	<b>65</b>	<b>156</b>	<b>17,2</b>	<b>746</b>	<b>82,2</b>	<b>33</b>	<b>3,6</b>	<b>449</b>	<b>49,4</b>	<b>459</b>	<b>50,6</b>	<b>4,2</b>	<b>2,92</b>
	El Dorado (179)	42	23,5	101	56,4	36	20,1	137	76,5	15	8,4	68	38	111	62	4,38	2,07
Meta (872)	Granada (393)	179	45,5	151	38,4	63	16	214	54,5	19	4,8	184	46,8	208	53,2	3,86	1,93
	San Juan de Arama (301)	124	41,2	128	42,9	48	15,9	176	58,8	12	4	147	48,8	154	51,2	3,93	2,15
	<b>TOTAL (% within department)</b>	<b>345</b>	<b>39,6</b>	<b>380</b>	<b>43,6</b>	<b>147</b>	<b>16,9</b>	<b>527</b>	<b>60,4</b>	<b>46</b>	<b>5,3</b>	<b>399</b>	<b>45,8</b>	<b>473</b>	<b>54,2</b>	<b>3,98</b>	<b>2,04</b>
	Orito (97)	17	17,5	56	57,7	24	24,7	80	82,5	5	5,2	41	42,3	56	57,7	4,32	2,14
Putumayo (778)	Mocoa (386)	42	10,9	239	61,9	105	27,2	344	89,1	31	8	108	28	278	72	5,45	3,07
	San Francisco (295)	42	14,2	160	54,2	93	31,5	253	85,8	18	6,1	149	50,5	146	49,5	3,86	1,89
	<b>TOTAL (% within department)</b>	<b>101</b>	<b>13</b>	<b>455</b>	<b>58,5</b>	<b>222</b>	<b>28,5</b>	<b>677</b>	<b>87</b>	<b>54</b>	<b>6,9</b>	<b>298</b>	<b>38,3</b>	<b>480</b>	<b>61,7</b>	<b>4,71</b>	<b>2,68</b>
	Chaparral (396)	235	59,3	112	28,3	49	12,4	161	40,7	33	8,4	273	68,9	123	31,1	2,92	1,42

Table 16: Prevalence of PTEs, suicidal behavior and social capital within municipalities

		Type of potentially traumatic event								Suicidal behavior		Social capital					
		No exposure		Non-Personal		Interpersonal		Any exposure				Increased		Low SC		High SC	
Tolima	Icononzo (381)	353	92,7	20	5,2	8	2,1	28	7,3	1	0,3	322	84,5	59	15,5	2,64	1,06
(1008)	Lerida (231)	190	82,3	35	15,2	6	2,6	41	17,7	2	0,9	150	64,9	81	35,1	3,61	1,12
<b>TOTAL (% within department)</b>		<b>778</b>	<b>77,2</b>	<b>167</b>	<b>16,6</b>	<b>63</b>	<b>6,3</b>	<b>230</b>	<b>22,9</b>	<b>36</b>	<b>3,6</b>	<b>745</b>	<b>73,9</b>	<b>263</b>	<b>26,1</b>	<b>2,98</b>	<b>1,28</b>
<b>TOTAL (% within department)</b>		<b>1695</b>	<b>37,8</b>	<b>2108</b>	<b>47,1</b>	<b>677</b>	<b>15,1</b>	<b>278</b>	<b>62,2</b>	<b>203</b>	<b>4,5</b>	<b>2433</b>	<b>54,3</b>	<b>2047</b>	<b>45,7</b>	<b>3,83</b>	<b>2,25</b>

Traumatic event exposure: municipality and department P Value <0,001

\* Percentage within the municipality

Suicidality symptomatology: municipality P Value <0,001  
 Departament P Value 0.002

Social capital: municipality and department P Value <0,001