# Who Keeps the Peace? Gendered Effects in UN Peacekeeping

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December 19, 2024

**Abstract**

Why are some peacekeepers more effective than others? Since the end of the Cold War, UN Peacekeeping Operations (PKOs) have increased dramatically in size and scope. However, most analyses of peacekeeper effectiveness fail to account for the gendered effects of peacekeepers. Conversely, work exploring the role of gender in peacekeeping has not taken advantage of recent advances in data availability that allow for more fine-grained analyses of the local and subnational effects of peacekeeping deployments. By unifying the relevant literature on the effects of women peacekeepers on trust, this paper provides the first comprehensive framework explaining how women can enhance UN peacekeeper effectiveness. Using two-way fixed-effects models and recent advances in optimal matching, I provide the first empirical evidence that including more women in a peacekeeping force can dramatically increase the unit's effectiveness against rebel one-sided violence. These findings suggest that women peacekeepers are more critical in maintaining peace than previously thought.

**Keywords:** UN, peacekeeping, conflict, peace science, gender

**Word count:** 10,506

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# 1  Introduction

"Boys will be boys." These were the words of Yasushi Akashi, head of the United Nations (UN) Mission to Cambodia (UNTAC), in response to allegations of UN Peacekeepers engaging in disorderly conduct, drunken behavior in public, and prostitution, often parking UN vehicles directly outside of brothels.[1] After an HIV epidemic around the Phnom Penh headquarters of UNTAC led to increased demand for younger girls, based on the fact that they were more likely to be HIV-free,[2] the UN responded by suggesting that peacekeepers avoid brothels while in uniform and sent 800,000 condoms to the country.[3]

UN peacekeeping has come a long way since UNTAC's operations in 1992 and now explicitly trains peacekeepers[4] against the kind of abuse recorded in Cambodia as well as changing the deployment compositions.[5] In many respects, the UN has moved away from a "boys will be boys" attitude and towards missions that engage locals more and bring women peacekeepers into the fold. For example, the UN Interim Security Force for Abyei (UNISFA) has relatively successfully maintained peace while having a high number of women peacekeepers.[6] The mission recently received the largest ever deployment of women peacekeepers from India,[7] and throughout the mission, Ghanian women peacekeepers make up a substantial part of the force, ranging from mission commander to troops deployed.[8]

A substantial amount of qualitative evidence indicates the importance of women peacekeepers in gaining the trust of local populations. Existing research shows that including women peacekeepers is likely to decrease UN abuse of civilians;[9] women also tend to be better in sensitive situations and less threatening overall.[10] In the UN Interim Mission in

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1. Essa 2017.
2. DeGroot 2011.
3. Westendorf and Searle 2017, 366.
4. https://www.un.org/preventing-sexual-exploitation-and-abuse/content/training
5. https://www.un.org/womenwatch/osagi/wps/
6. UN 2023.
7. Muzaffar 2023.
8. Crawford 2023.
9. Karim and Beardsley 2016.
10. UNIFEM 2010; Simić 2010.

Lebanon (UNIFIL), for instance, Ghanaian Peacekeeper Esinam Baah reports that locals often do not agree with an unknown man (in this case, a peacekeeper) talking to women and that her status as a woman grants her unique access to local women because they can talk to her and do not see her as a threat.[11] Despite the importance of women peacekeepers in building trust and thus improving the operational capacity of an operation, existing quantitative research exploring operational effectiveness in preventing violence fails to account for the gendered effects of peacekeepers.

Other research has examined the effect of diversity on peacekeeper effectiveness,[12] yet these analyses focus on diversity as a national, ethnolinguistic, or quality aspect of deployed troops. Although essential, analyses on peacekeeping effectiveness miss a substantial amount of variation in peacekeepers by gender. By unifying the relevant literature on the effects of women peacekeepers on trust,[13] this paper provides the first comprehensive framework explaining how women can enhance UN peacekeeper effectiveness. As locals' trust in peacekeepers increases, women increase the intelligence capabilities and, thus, the ability of the unit to respond to and/or prevent violence.

To test my theory and provide the first empirical evidence that women peacekeepers can play pivotal roles in enhancing the UN's effectiveness at civilian protection, I use the Robust African Deployments of Peacekeeping Operations (RADPKO) data on peacekeepers' monthly subnational location by gender,[14] combined with the Georeferenced Events Database (GED) data on violence against civilians.[15] I estimate several models from two-way fixed effects, matched logit regressions, and instrumental variable analyses. I find that an increase in women peacekeepers is associated with substantially fewer deaths than an equal increase in men peacekeepers. These findings speak to the importance of gender diversity in peacekeeping and show how critical women are to keeping the peace.

11. Palanivelu 2023.
12. Bove and Ruggeri 2016, 2019; Haass and Ansorg 2018; Dworschak and Cil 2022.
13. Karim and Beardsley 2013, 2016; Narang and Liu 2021.
14. Hunnicutt and Nomikos 2020.
15. Davies, Pettersson, and Öberg 2022.

This paper proceeds as follows. First, I review the previous contributions to the peace-keeping effectiveness literature and examine the literature on the effects of women peacekeepers. Second, I construct a framework suggesting why peacekeepers prevent violence locally; then, I attempt to unify the relevant theoretical literature into a single framework, emphasizing how women peacekeepers increase local trust and thus reduce one-sided violence (OSV). Next, I describe my research design and data, explaining why and how both are instrumental in determining causal relationships despite selection effects and reverse causality. Finally, I analyze the results of my models, explaining their implications and where future scholars can proceed from here.

# 2    Peacekeeping Effectiveness and Gender

## 2.1    Violence Prevention

The existing literature examining whether peacekeepers prevent violence established that peacekeeping works. For example, peacekeepers tend to reduce battle violence between incumbents and rebel groups.[16] By getting in the way of belligerents, peacekeepers can slow their movement and prevent them from fighting each other. Other research shows that peacekeeping operations are more likely to increase the success of peacebuilding, leading to less war recurrence and overall increasing the stability of a state.[17]

Regarding reducing violence against civilians, the results show that peacekeepers tend to reduce fatalities with some caveats. Hultman, Kathman, and Shannon argue that UN troops and police reduce the amount of violence against civilians while observers cause an increase in violence.[18] Bara and Hultman compare UN and non-UN peacekeeping and show that UN peacekeepers are the only actors between the two that prevent violence against civilians by

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16. Hultman, J. Kathman, and Shannon 2014; Beardsley and Gleditsch 2015; Peitz and Reisch 2019.

17. Doyle and Sambanis 2000; Fortna 2004, 2008.

18. Hultman, J. D. Kathman, and Shannon 2013 point out that this is likely because UN observers are unarmed, which indicates a lack of commitment by the international community to peace, showing belligerents that their actions likely will not have dire consequences.

non-state actors.[19]

However, Walter, Fortna, and Howard point out that while we know the deployment of peacekeepers at a state level decreases violence, it is unclear why.[20] Violence against civilians is inherently geospatial (taking place in time and space) and personal (occurring against humans). Therefore, understanding what is happening at the state level cannot explain what is happening locally when peacekeepers deploy to stop violence; research at the state level will necessarily miss subnational variation in violence outcomes. More recent research details the local effects of peacekeeping, such as Ruggeri, Dorussen, and Gizelis who examine how peacekeepers affect the duration of violence locally,[21] and Fjelde, Hultman, and Nilsson who found that "even when accounting for the non-random selection of peacekeepers to a location, their presence has a negative and significant effect on reducing the risk of violence against civilians by rebel actors."[22]

By increasing the collective understanding of the effects of peacekeepers on reducing OSV, these articles have expanded our knowledge of how peacekeepers impact violence. Importantly, however, the mechanisms underlying these articles are based on the assumption of peacekeepers as unitary actors. In other words, they do not address the heterogeneous treatment effects of peacekeepers or miss the subnational variation in violence, providing a novel but limited understanding of the differential effects peacekeepers may have.

I contend that the past literature missed an essential aspect of peacekeeper effectiveness: gender diversity. Recent evidence suggests that women peacekeepers have a different effect on the overall effectiveness of peacekeeping units.[23] I contribute to the literature on peacekeeping effectiveness by developing a theoretical understanding of how gender diversity increases peacekeeper effectiveness.

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19. Bara and Hultman 2020.
20. Walter, Howard, and Fortna 2021.
21. Ruggeri, Dorussen, and Gizelis 2017.
22. Fjelde, Hultman, and Nilsson 2019, 125.
23. Narang and Liu 2021.

## 2.2   Gender and Peacekeepers

Various scholars have discussed the theoretical reasons why increasing women's participation in peacekeeping missions benefits the mission itself and the locals. For example, Karim and Beardsley argue that an increase in women peacekeepers and peacekeepers from countries with better gender equality is associated with lower allegations of sexual exploitation and abuse levied against peacekeepers.[24] Further studies on the effectiveness of women peacekeepers show that women can have an important impact on increasing trust and promoting gender equality through their beliefs in their ability[25] but that countries tend to send women peacekeeping units into easier cases.[26]

Narang and Liu's article is the first systematic analysis of women's participation in peacekeeping, showing that the inclusion of women in peacekeeper operations does not "come at the cost of 'effectiveness.'"[27] While Narang and Liu provide a valuable starting point, their analysis only discusses how women peacekeepers *do not* harm effectiveness rather than discussing how they may enhance it. Narang and Liu's analysis focuses on the duration of peace in post-civil war societies. While necessary for various empirical and theoretical reasons, their research does not necessarily extend to the ability of women peacekeepers to protect civilians per se, especially during civil conflicts. More theory and analysis is needed at the subnational level to determine if the gendered composition of peacekeepers changes violence outcomes. Thus, my theory further addresses these gaps by distinguishing between the gendered effects of peacekeepers. The peacekeepers in Ch. VII missions often target rebels with intentional violence but can only do so when they have reliable intelligence from civilians that is gained through trust.[28] Since women are more likely to increase civilian trust, I expect peacekeeping units with more women to have a more substantial effect on violence.

I contribute to the existing research by unifying the literature on women peacekeepers

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24. Karim and Beardsley 2016, 100.

25. Karim 2017, 842.

26. Karim and Beardsley 2013.

27. Narang and Liu 2021, 4.

28. Giray 2022; Duursma 2021.

and their effects into a single framework of how they change locals' trust in peacekeepers and thus reduce OSV. When peacekeeping units with more women are present in localized spaces, civilians increase their trust in peacekeepers, leading to less violence against civilians than if peacekeeping troops with more men were present and less than if no peacekeeping units were present.

# 3    What's Gender Got to Do With It?

To understand how women peacekeepers uniquely affect the ability of the UN to stop and deter local violence, I start this section by establishing why state and rebel groups engage in OSV.[29] When used by the state, OSV is often used to suppress threats or insurgencies,[30] but can also be used to suppress dissent or raise the costs of supporting rebels.[31] When used by rebels, violence against civilians is often used to convey capabilities to the other side,[32] or to draw international attention to their cause and weaken the incumbent.[33] Regardless of the reasons actors may attempt OSV, the assumption underlying the rest of this section, and deriving from Fjelde et al.,[34] is that when present, peacekeepers affect the costs of committing violence as it happens and the costs of committing violence in the future (i.e., a deterrent effect). However, peacekeepers must be geospatially and temporally present to stop or deter violence. In other words, peacekeepers' use of violence and naming and shaming can only occur when they are nearby.

Importantly, this framework is limited to violence against civilians from rebels, as peacekeeper presence requires host-state consent; peacekeepers are thus unlikely and unwilling to attack government forces directly for fear of expulsion from the country. Even if peacekeepers are willing to stop the violence from the incumbent, peacekeepers require host-state

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29. One-sided violence (OSV) is defined in this paper as the intentional targeting of civilians to achieve political goals. I refer to OSV and violence against civilians interchangeably.

30. Davenport 1995; Lyall 2009.

31. Kalyvas 2006; Weinstein 2007.

32. Schelling 1966; Hinkkainen Elliott, Polo, and Eustacia Reyes 2021.

33. Hinkkainen Elliott, Polo, and Eustacia Reyes 2021; Lake 2002.

34. Fjelde, Hultman, and Nilsson 2019.

consent to implement protection of civilian activities against nonstate actors.[35] Thus, this paper only examines the effects of peacekeepers on rebel OSV. Since rebel groups do not share the same power of host-state consent required for PKOs, they are more directly affected by peacekeeper presence than government forces are. As a check against this claim, the main models in this paper are tested with the outcome of Incumbent violence against civilians, found in Appendix F, and show support for my argument.

## 3.1   How Do Peacekeepers Know Where to Stop the Violence?

To alter the costs of violence against civilians, peacekeepers are necessarily limited by the local knowledge required to locate current or future violence. Peacekeepers cannot respond to violence or potential violence if they are unaware of the local situation. I argue that a vital tool for peacekeepers is the level of intelligence they have to respond to past or current violence and to prevent and deter prospective violence. The intelligence of the local landscape is paramount to peacekeepers' ability to protect against violence.

Where do peacekeepers obtain intelligence? Intelligence in military and peacekeeping operations is a vital part of the operational environment; without knowledge of what belligerents are carrying out and what they plan to do, actors cannot take action to prevent violence against civilians. I classify the intelligence that peacekeepers obtain as *technological* and *personal* intelligence.

Technological intelligence involves gathering information through technology, often through sophisticated means. Take, for example, the use of drones by the United Nations in the Democratic Republic of Congo (MONUSCO). Via a private security contractor, the UN monitored local populations and used the drone as a form of early warning for violence.[36] With technological intelligence, the UN looks for visual signs and clues about the operating environment. On the other hand, personal intelligence comprises the local knowledge the UN gathers from interpersonal connections peacekeepers make with non-UN persons. The

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35. Duursma, Lindberg Bromley, and Gorur 2023, 11.
36. Tkach and Phillips 2020, 114.

United States' Surge Strategy during the Iraq War is a key example of this. During the campaign to win the hearts and minds of Iraqi civilians, the occupying US military would leave military bases and interact with the people to gain their trust and, subsequently, information about the local situation.[37]

Peacekeepers gain the information needed to respond to active or potential violence with *technological* and *personal* intelligence.[38] Yet, despite how well-trained peacekeepers are, the advanced equipment they use, or even how good their leadership is, advanced technology cannot uncover local interpersonal dynamics that lead to violence. Another good example comes from the US's experience in Iraq for nearly two decades. After decimating the world's third largest military in less than a month, the US firmly established itself as the strongest and most advanced military on the planet with an unquestioned ability to fight conventional wars.[39] Yet, that same military struggled to take on a much weaker and less advanced rebellion from Al-Qaeda.[40] Even with technology that was years or even decades more advanced than the next most powerful country, the US military was hardly successful against Al-Qaeda.[41] The difference in these scenarios was intelligence; the most advanced sensors and intelligence-gathering technology could do nothing for counterinsurgency efforts, as the US struggled to detect rebels from civilians.[42] While peacekeepers do not necessarily (or usually) act as counterinsurgency forces, their actions to support the state and protect civilians require the use of technological and personal intelligence, as *any* action on the part of the UN requires intelligence.

Recall that peacekeepers in Chapter VII missions are mandated to find and prevent violence against civilians. Warzones are not information-rich environments, however. Not only are peacekeepers often contending with incumbent and rebel violence ranging from

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37. Robinson 2009, 110.

38. Personal intelligence is often referred to as "human intelligence" in the military intelligence literature.

39. Shimko 2010.

40. McMaster 2008a.

41. Ibid.

42. McMaster 2008b. Peacekeepers act as a neutral third party and deploy to enforce the peace, often against rebel nonstate actors, thus making them similar yet distinct from traditional state forces attempting counterinsurgency operations.

the battlefield to the streets, but they must also navigate amongst a population that sees them as outsiders in the conflict. Peacekeepers thus face significant obstacles that will hamper their ability to keep the peace. This is linked: If local populations do not trust or support peacekeepers, then peacekeepers will have a decreased ability to gather intelligence.[43] Moreover, the distrust of peacekeepers can lead to more support for rebel groups now with an increased capacity to further harm civilians.[44]

The critical causal link here is one of trust. Prior research has established that greater trust in UN forces leads to more intelligence,[45] meaning personal intelligence is at least in part dependent on the trust associated with UN forces. When locals trust peacekeepers, those same locals provide them with information about the local context and local dynamics.[46] Other evidence shows that, more important than the number of troops, peacekeepers rely on early warning systems and intelligence to prevent violence against civilians.[47] I argue that this increases the importance of looking at how peacekeepers build trust. With this new information gained through an established relationship with locals, peacekeepers can address threats to peace more effectively using intelligence as an early warning system.[48]

## 3.2 Diversity in Peacekeeping

Diversity in the deployment of peacekeepers is an essential aspect of peacekeeping effectiveness, although contemporary peacekeeping research has only recently branched out into exploring the composition of peacekeeping units.[49] In this section, I discuss in detail why diversity in the gender of peacekeeper deployed matters and how it can lead to increased trust and, subsequently, intelligence. I highlight this by exploring the potential pitfalls of men-only deployments, followed by a discussion on how increasing the number of women

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43. Giray 2022.
44. Ibid.
45. Gunderson and Huber 2022; Narang and Liu 2021; Karim and Beardsley 2016; UNIFEM 2010.
46. Bove and Ruggeri 2019, 1632, 1636.
47. Duursma 2021.
48. Bove and Ruggeri 2019, 1636.
49. Bove and Ruggeri 2016, 2019; Belgioioso, Salvatore, and Pinckney 2021.

deployed will likely lead to increased trust in the peacekeeping deployment.

As highlighted in the introduction discussing UNTAC, the UN has a long and troubled history of committing crimes, abuse, and worse against the populations it deploys to protect. In fact, male sexual exploitation of local women and children is so widespread that the terms "Peacekeeper babies" and "blue helmet babies" arose to describe children fathered by peacekeepers and subsequently abandoned.[50] Although it is hard to know how much abuse has come at the hands of men as opposed to gender diverse units, the gender diversity of peacekeeping units historically has been incredibly low. In 1993, for example, women made up 1% of deployed peacekeeping personnel,[51] meaning that abuse in cases like Cambodia was almost certainly by men-only units. Abuse committed by peacekeepers harms the trust of locals in the PKO. As Bove and Ruggeri (2016, 686) point out, "if the bond of trust between the locals and peacekeepers is damaged by the blue helmets' misconduct, the UN mission can be denied the relevant and substantial information about local dynamics, thus damaging the mission's effectiveness in protecting civilians."

Recent findings suggest that women are more likely to restrain their men counterparts from committing SGBV and other illicit activities; since their presence tends to lead to more reporting of these crimes,[52] women peacekeepers can act as a deterrent. UN Peacekeepers have committed many crimes against the civilians they are there to protect, such as their use of "women and children as sex slaves" in Bosnia.[53] While this inherently puts women as the group primarily responsible for restraining men peacekeepers instead of UN leadership and training, it's still important to acknowledge how women tend to reduce the negative externalities of men peacekeepers and decrease the chances of civilians losing trust in the peacekeepers.

Although abuse by peacekeeping units leads to a loss of trust in the mission, other factors also play a crucial role in explaining why units without women may also lead to less trust. For

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50. Askin, Lee and Bartels 2020.
51. https://peacekeeping.un.org/en/women-peacekeeping
52. Narang and Liu 2021.
53. James and Tribune 2002.

example, men peacekeepers are often more likely to be complicit in reproducing "militarized masculinity."[54] Militarized masculinity occurs when, in the name of unit cohesion, smaller aggregations of military units emphasize their masculinity and penalize femininity. It rejects everything feminine in order to be a "real man," meaning that it "relies on the construction of the 'other' as feminine."[55]

Militarized masculinity can thus serve to isolate peacekeepers from civilians, as they divide themselves from locals.[56] This masculine culture can especially isolate women and children, who are more likely to be seen as feminine. Karim and Beardsley emphasize that this militarized masculinity can make it *more* likely that peacekeepers will use violence against civilians, which would further enhance distrust of the mission.[57] This masculinity hampers trust between civilians and peacekeepers and further contributes to them being seen as an occupier rather than an ally. Women peacekeepers operating with less militarized masculinity are thus more likely to be seen as more friendly, increasing the chances that locals trust them.[58]

### 3.2.1   How Women Peacekeepers Build Greater Trust

When a peacekeeping unit with more women on average is present, peacekeepers will be more effective than when fewer women are present. Why will gender-mixed units have more success than gender-disproportionate units? I draw on evidence from several potential mechanisms on how women are likely to increase trust in peacekeepers from local populations, influencing peacekeepers' effectiveness. No single mechanism is necessary for the theory to work. Instead, the theory of women peacekeepers affecting trust will work when, *on average*, these mechanisms lead to more trust. I import this theory to the local level, specifying that these mechanisms only work when peacekeepers interact with civilians. Peacekeepers build

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54. Karim and Beardsley 2017.
55. Ibid, 38.
56. Karim and Beardsley 2013.
57. Ibid, 40.
58. Karim and Beardsley 2017, 471.

trust through local interactions, and more women and gender diversity will lead to more trust.

Trust can be harmed when peacekeepers break local gender norms, especially regarding contact and interactions with local women. In societies where these norms are strictly enforced, any deviation by peacekeepers can lead to suspicion and alienation. However, peacekeepers can build stronger relationships with the local community by being sensitive to and respecting these cultural norms. This connection can increase the willingness of local women to work with the UN. As the United Nations Development Fund for Women (UNIFEM) points out in a report, men peacekeepers may seem more threatening to women civilians, especially during interviews or searches of civilian women.[59] In countries or regions where women may be forbidden from talking with men outside of their familial unit, women peacekeepers can potentially bridge the gap that men peacekeepers cannot.

Under systems of patriarchal violence, women are more likely to experience and thus relate to other victims of violence, especially sexual and gender-based violence (SGBV), meaning that women peacekeepers are better at handling sensitive situations that occur during peacekeeping missions in insecure states.[60] This includes activities such as personal searches, interviewing victims of violence, and listening to victims who experience SGBV. Burkina Faso Peacekeeper Doamba Sawadogo argues that women peacekeepers are a vital asset in supporting survivors of SGBV in ways that men peacekeepers are not, which makes community interactions easier.[61] As community members, especially women, become more comfortable with peacekeepers, they are more likely to trust them. While this is likely to increase connections to local populations, I note Karim's discussion of the access gap, wherein women peacekeepers (or any peacekeepers in general) may not have access to local women;[62] in these cases, the benefits of women's addition to the mission will likely be lower.

Perceptions of the UN are key in building and maintaining trust with local populations.

59. UNIFEM 2010, 28.
60. 43.
61. Sawadogo 2020.
62. Karim 2017.

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Even if the mission is succeeding in its goals and improving the safety of civilians, locals must *believe* that the UN is responsible for these outcomes and that the UN is there to help. Evidence suggests that women are perceived as more effective peacekeepers than men. A survey in Liberia, for example, found that contact with women peacekeepers increased the likelihood of respondents believing women are more effective in peacekeeping roles.[63] If women are perceived to be more effective at their jobs, it follows that locals will have higher levels of trust when women are present and interacting with civilians.

Women peacekeepers also tend to be less threatening to civilians, which builds trust within the local community as their perceptions shift.[64] Civilians may already see peacekeepers as an occupying army and joint peacekeeper operations with state forces may make them seem more partisan. Any further distancing of the UN by the local population by appearing threatening may lead to less trust. Stemming from gender norms perceiving women as "caring, nurturing, and empathetic,"[65] this lower threat to civilians by women peacekeepers should increase the trust they have in the UN.

While perceptions of threat and effectiveness are essential, so are locals' beliefs about the legitimacy of the UN. More women within the forces of the security apparatus leads to positive impacts on how locals see their "legitimacy and trustworthiness," and it "may increase both men's and women's willingness to report other gendered and nongendered crimes."[66] This occurs because women are more likely to identify with women peacekeepers, leading to increased trust.[67] With a more gender diverse unit present, peacekeepers have a closer gender split to the actual population, meaning more civilians overall are likely to look like and identify with the peacekeeping unit. In the United Nations Mission in South Sudan (UNMISS), Rwandan police officer Jackline Urujeni says that women peacekeepers are crucial to inspiring local girls and women. Her role as a commanding officer empowers

63. Karim 2017, 839.
64. UNIFEM 2010; Simić 2010.
65. Simić 2010, 195.
66. Gunderson and Huber 2022, 3.
67. Ibid, 3.

locals to believe they "don't exist just to get married and have babies."[68] Officer Urujeni argues that women peacekeepers directly impact the UN's dynamics with local women and men: "Feeling how much trust these women have in us is something very special. Many times, they don't even consider us as police officers – we are more like friends or sisters... several of them call us 'sisters', and one little boy in there insists on calling me 'Mommy.'"[69]

The above mechanisms increase locals' trust in UN peacekeepers when the proportion of peacekeeper women is higher. Two important things happen as locals increase their trust in peacekeepers. First, increased local trust in peacekeepers leads civilians to be more willing to report crimes and violence to peacekeepers,[70] and especially a higher willingness to report SGBV.[71] Second, more trust from locals leads to "increased operational intelligence/situational awareness, including knowledge about movements in the community of arms, contraband or weapons caches."[72] Importantly, rebel activities, especially as the rival faction to an incumbent, are more likely to take part in illicit activities that are hidden. Rebels often do not wear uniforms and are hard to identify, meaning observing these activities is inherently tricky for peacekeeping operations to monitor, deter, or stop. With more trust in peacekeepers, an increased willingness to report crimes and provide local intelligence is vital to reduce OSV; as peacekeepers learn about more crimes, violence, and other important events than they otherwise would, their ability to stop and/or deter violence against civilians increases.

With more trust within the community and thus more reporting and intelligence from civilians to peacekeepers, the rebels now have higher costs to violence, as it is more likely peacekeepers will learn about it and respond. Moreover, since peacekeepers now have more information on arms and other illicit activities throughout the area they deploy to, they increase their ability to restrict the flow and thus decrease the threat of nonstate actors to

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68. Urujeni 2020.
69. Urujeni 2020.
70. Gunderson and Huber 2022.
71. Narang and Liu 2021; Karim and Beardsley 2016.
72. UNIFEM 2010: 28

the civilian population.[73]

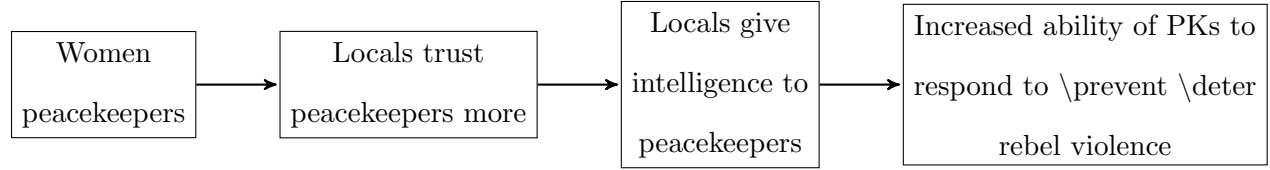| Women peacekeepers | → | Locals trust peacekeepers more | → | Locals give intelligence to peacekeepers | → | Increased ability of PKs to respond to \prevent \deter rebel violence |

Figure 1: A diagram of the causal chain.

Finally, my theoretical framework assumes that women peacekeepers have the same baseline of abilities as men regarding the traditional mechanisms used to stop violence. In other words, I assume that women peacekeepers should have the same ability to prevent violence through direct action (e.g., violence) and reporting (e.g., naming and shaming). Although this is unlikely to be the case, it lies outside the scope of this paper to compare the direct abilities of men and women peacekeepers. This assumption, combined with the previously listed mechanisms that directly lead to more trust and thus more operational intelligence, leads to my hypotheses that women peacekeepers will negatively affect rebel violence. With this theoretical framework established, I test the following three hypotheses:

*H1: Rebel violence against civilians should decrease as the absolute number of women peacekeepers increases.*

*H2a: Rebel violence against civilians should decrease as the proportion of women peacekeepers increases.*

*H2b: When a gender-mixed peacekeeping unit is present, there will be less rebel violence than if a gender-disproportionate peacekeeping unit were present.*

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73. This does not necessarily mean that peacekeepers will be able to prevent all violence, nor does it give peacekeepers the political will, equipment, or desire to stop or prevent violence. More women deployed will likely lead to increased ability, but there is no reason to believe that it will modify the other pieces of the peacekeeping puzzle, positively or negatively.

Alternatively, the inclusion of women peacekeepers in a peace operation has the potential to harm the trust of the unit, specifically in patriarchal societies. In patriarchal societies where men dominate, there is a possibility that men and women will resent and resist women's status as potential "protectors," mainly because patriarchal violence is enacted in men's domination over women.[74] Under this logic, women peacekeepers deployed to more patriarchal societies may lead to less trust in a peacekeeping unit, as civilians react negatively to women in control of the means of violence. Although theoretically plausible, this effect is likely much more limited to women's representation in domestic security institutions than in international organizations like the UN. As a third party to the conflict, women peacekeepers pose a much smaller threat to the domestic patriarchal order that could lead to backlash.

While I argue that ceteris paribus, increasing the number of women peacekeepers deployed will lead to fewer civilian casualties, I also make the incorrect but necessary assumption that women peacekeepers are unitary actors distinct from men in the same qualitative way. Women peacekeepers from more or less patriarchal societies will likely have an increased or decreased capacity to connect with locals, and several other factors, such as country of origin or role within the mission, will also likely impact this ability. I recognize this as a limitation in my theoretical and empirical models and emphasize that my research provides a novel exploration of gender and peacekeeping on violence without the ability to explore every possible difference.

Beyond the theoretical, there is anecdotal evidence of this process occurring during the Ch. VII missions I examine. For example, take Captain Cecilia Erzuah of the United Nations Interim Security Force for Abyei (UNSIFA). In her more than one year of leading a platoon in Abyei, Captain Erzuah witnessed the shift in the amount of trust locals had in the UN and directly attributes it to her team's (and especially the women peackeeepers') engagement with locals: "Because of our involvement, we found more women opting to join

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74. Lindsey 2022, 191.

the Community Protection Committee, through communication, constant involvement of them in our activities, they got to know that we are neutral and we are here for them."[75] She further states that "When we deployed initially, we realized that the community was not forthcoming in terms of information. And that was the herculean task myself and my team had to break. So we interacted with them and, with time, it became very cordial. They tell us what their security concerns are. After satisfying their security needs, which is the most important for us, we also look at the little we can do to alleviate the sufferings of the people." For Captain Erzuah, the engagement of her team, composed of women and men peacekeepers, was vital in breaking through to the locals. Once trust was established, information on the local dynamics flowed to Captain Erzuah and her team.

# 4    Research Design

In this section, I explain how I test the proposed hypotheses. Important to distinguish is the necessity of testing these hypotheses at a subnational level. Each of the mechanisms outlined above should independently affect violence against civilians, but it must be tested subnationally. Women peacekeepers' interactions with populations should lead to more intelligence, and thus more effectiveness, which means that the mechanisms operate at a local level.

For a more thorough description of which models are used in the paper, including the formal equations representing the regression models, refer to the appendix.

## 4.1    The Data

To better understand when and where peacekeepers save civilian lives, scholars need accurate and disaggregated data sources on violence against civilians and the UN peacekeeper deployment. I follow the lead of other research in this area, such as Fjelde, Hultman, and Nilsson,[76]

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75. United Nations 2023.
76. Fjelde, Hultman, and Nilsson 2019.

Beardsley and Gelditsch,[77] and Ruggeri et al.;[78] each use the UCDP's Georeferenced Dataset (GED) from the Uppsala Conflict Data Program.[79] The UCDP covers "all cases where one-sided violence by an armed actor reaches an annual twenty-five-fatality threshold."[80] To geolocate peacekeeper deployments, I use the RADPKO[81] as opposed to GEO-PKO.[82] Although GEO-PKO contains more temporal variation than RADPKO, it does not contain information on the gendered breakdown of peacekeepers as RADPKO does.

**PRIO**   In this paper, the unit of analysis is a PRIO-GRID month, which is how the UCDP and RADPKO organize the data. PRIO-GRID is a system introduced by Tollefsen et al. that divides the world into approximately 55 km x 55 km grids, or around 0.5°, regardless of national or geographic boundaries.[83] Disregarding the land boundary has several practical applications, but none more so than that the boundaries are randomly selected and thus entirely exogenous of the data within each grid. PRIO grids being created without any direct influence of land or geography means at the unit of analysis, measurement errors in the coding of the violence data can be assumed to be as if randomly distributed among units. In the GED data, it is hard to be sure that all instances of violence against civilians are identified correctly and accurately. Nevertheless, because the grid borders of PRIO are exogenously determined independent of the violence within, and there is thus no causal connection between whether violence occurred and the grid assignment, we can assume that any characteristics determining why these data are missing are spread evenly between the grids and will thus bias the data evenly, leading to more reliable estimates. PRIO also aggregates the data on the control and matching variables I use in this study, described in Section 4.4.

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77. Beardsley and Gleditsch 2015.
78. Ruggeri, Dorussen, and Gizelis 2017.
79. Davies, Pettersson, and Öberg 2022.
80. Fjelde, Hultman, and Nilsson 2019.
81. Hunnicutt and Nomikos 2020.
82. Cil et al. 2020.
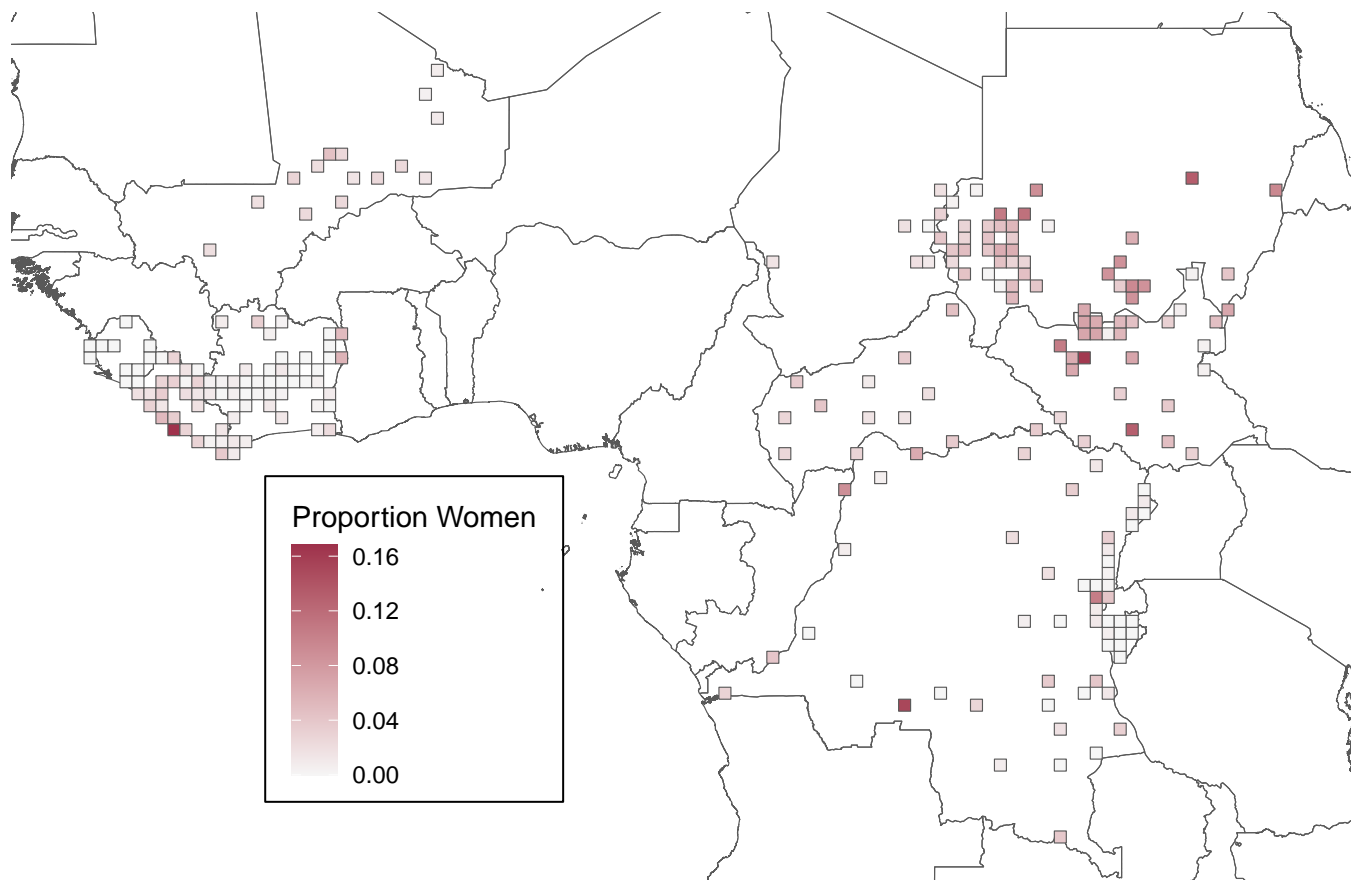83. Tollefsen, Strand, and Buhaug 2012.

Figure 2: All Ch. VII deployments aggregated by grid measuring the proportion of women deployed when any peacekeeper is deployed. *Note: This is aggregated over time, meaning the proportion is representative of the proportion of women deployed throughout a deployment. Many individual units have a higher proportion of women than 0.16.*

**UCDP GED**    The Uppsala Conflict Data Program's Georeferenced Events Database[84] provides worldwide data on violence and conflict. Specifically, the UCDP assembles the data with various sources and reliability checks.[85] For example, the coding guidelines are thorough and provide layers of reliability and intercoder checks to ensure accuracy. The GED measures violence against civilians as violent events taken against civilians that are not the result of collateral damage. In other words, the GED records events as intentional acts of violence. In this paper, I match the GED data with the RADPKO data to geolocate the violence and peacekeeper locations and answer my research question.

**RADPKO**    The Robust Africa Deployments for Peacekeeping Operations (RADPKO) provides information on UN peacekeeping operations throughout Central and Western Africa. RADPKO was constructed because of an "empirical levels-of-analysis-problem and divergent sampling strategies"[86] present in the existing quantitative literature. RADPKO contains geospatially and temporally disaggregated data on peacekeeper presence.[87] The data was constructed from archival maps available from the UN Department of Peace Operations (DPO). RADPKO disaggregates deployed peacekeepers by gender and peacekeeper type,[88] thus allowing for a subnational analysis.

The RADPKO data also encompasses nearly the entire range of data for PKOs with a Chapter VII mandate. In this sense, each PKO in the RADPKO dataset has the authority and mandate to patrol locally and protect civilians. Although not inherently the only type of peacekeeping mission that matters, the assumption that peacekeepers stop violence where it happens and the assumption that they respond to violence temporally requires the PKO to have the ability to react to local-level monthly violence without UNSC approval. Without a Chapter VII mandate, peacekeepers have their hands tied and thus have little incentive or

84. Sundberg and Melander 2013; Davies, Pettersson, and Öberg 2022.
85. See UCDP's "Data Collection" section of their website: https://www.pcr.uu.se/research/ucdp/methodology/
86. Hunnicutt and Nomikos 2020, 646.
87. Ibid.
88. E.g., military, police, observer.

ability to respond to violence.

Even more importantly, the causal mechanism of the gendered effects of peacekeepers can only work at the local level. Local interactions are required for women peacekeepers to build trust with civilians and thus allow peacekeepers to respond to violence more effectively. Studying the effects of women at a national level could show that more women lead to less violence. Still, without examining the local effects, the results will miss the subnational variation in where peacekeepers deploy. So, this study uses RADPKO for the subnational data available. RADPKO covers PKO deployment when deployed in the following countries/regions: Sierra Leone, the Democratic Republic of Congo, Liberia, Côte d'Ivoire, Burundi, Sudan, South Sudan, Abyei,[89] Chad, Mali, and the Central African Republic.

Finally, since this data covers the majority of Chapter VII missions, a close approximation to the entire universe of cases is available to analyze. In other words, this sample is only lightly truncated[90] and gives a substantial number of observations to answer the research question and test the proposed hypotheses.

## 4.2   Dependent Variables

To understand how peacekeepers impact violence, let us take a step back and examine how violence against civilians is measured. I quantify violence against civilians in two distinct ways: as a binary and continuous outcome. I measure violence against civilians, coded in the UCDP's data as one-sided violence (OSV).

My dependent variable (DV) of *violence* is measured in two ways to capture as much variation in the data as possible. My analysis innovates on previous research by measuring the total violence against civilians by rebels. Fjelde, Hultman, and Nilsson argue that

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89. While not an independent country, RADPKO classifies it as such due to the region having a unique peacekeeping mission deployed.

90. Because some missions are ongoing, and the fact that RADPKO only covers PKOs until 2018, the sample does not contain the total universe of cases but is close to it. Two other Ch. VII missions, in the Balkans and Haiti, are not included in the original RADPKO data.

expecting peacekeepers to reduce every instance of violence against civilians is too hard of a test; yet, I note that peacekeepers in these missions are given an explicit mandate to protect civilians and respond to local violence escalation. The Security Council tasks them to respond to violence, so it is crucial to test whether they do that successfully by preventing outbreaks of violent events and deaths. Further, analyses of peacekeeper effectiveness in reducing violence should be hard tests. They must test what peacekeepers are mandated to do to understand how effective they are.

Fjelde, Hultman, and Nilsson measured violence against civilians through a dichotomous outcome "where five or more civilians were killed in a given grid cell in a given month."[91] I reconceptualize how Fjelde, Hultman, and Nilsson operationalize violence against civilians. While civilian death is a relatively standard measure of one-sided violence (OSV) in the existing literature, using a binary measure of death as the sole measure of OSV can lead to biased conclusions. Thus, I use their conception of OSV (a binary measure of whether >4 civilians died) and my conception (a count outcome measure of the total number of civilian deaths).

As stated in the theory section, I expect the gendered effects of peacekeepers only to affect rebel group violence; the host state's consent binds the UN and its peacekeepers and, ergo, they are unlikely to impact state violence regardless of the gender of peacekeeper deployed. Therefore, my models examine the violence of rebels against civilians.

## 4.3   Independent Variables

The treatments of gendered peacekeepers measured in this paper are estimated based on the analysis used. I run several models, with each analysis broken down into one of five measures of the dependent variables. When using a continuous measure of peacekeepers, I use the variables *Women PKs Deployed* and *Men PKs Deployed*. Each of these is coded from RADPKO's data on the gender of peacekeepers deployed. Modeling after Fjelde, Hultman,

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91. 112

and Nilsson (2019), I measure peacekeepers deployed in the 100s, meaning that five women peacekeepers in the model would equal 500 women peacekeepers deployed on the ground, making the output interpretation more straightforward.

My second set of independent variables measures the gender diversity of a peacekeeping unit. *Prop. Women PKs* measures the gendered proportion of women peacekeepers in the deployment. Since the proportion of women and the proportion of men are perfectly collinear throughout the data (e.g., they always vary identically) and *H2a* specifies the proportion of women, the models exclusively test the proportion of women as treatment.

Finally, because the third set of models in this paper uses a binary matching approach based on the "treatment" of peacekeeper presence to match treated and untreated grids, I cannot use a continuous variable as the independent variable after matching. Therefore, with matched data of approximately 13,000 observations,[92] my analysis is run with the measure of treatment as *PK Presence* coded as a binary indicator of whether gender mixed or disproportionate units were present.

For that analysis, my main treatment variables are *Mixed PK Unit* and *Disproportionate PK Unit*. These treatments are dummy measures of the binary treatment variable of peacekeeper presence. *Mixed PK Units* are any measures of treatment where there were more women present than the median number throughout the sample of deployed peacekeepers. In other words, any peacekeeper unit with a greater percentage of women than the median 15.8% is coded as a one in *Mixed PK Units*, with the reverse being true for *Disproportionate PK Units*.

To understand the gendered effects of peacekeepers on violence and test these hypotheses, I employ several models and robustness checks. The primary models are two-way fixed effects[93] and negative binomial logits with matching. First, I use the RADPKO dataset, subsetted from the first time women peacekeepers deployed into any Chapter VII mission.

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92. Divided equally between the treatment and control groups
93. Two-way fixed effects models employ month and grid as fixed effects. These models thus account for unobserved heterogeneity by removing time and unit variation.

The two-way fixed effects models have $\approx$300,000 observations and include all grid-month observations of where no peacekeepers deployed, men peacekeepers deployed, or men and women peacekeepers deployed. Next, I use a matched dataset of $\approx$13,000 observations with a logit model; in these models, I match based on where units with more or fewer women are deployed. While the $N$ for the second analysis is much smaller, it compensates for this size difference with increased model efficiency and also more effectively tests whether peacekeeping units with more or less women deploy to similar areas and which units keep the peace.

## 4.4   Matching

Although the usual definition of "treated" for a matched data set is those exposed to the treatment, my models instead seek to understand the differences between areas with gender-mixed and gender-disproportionate peacekeeping units deployed. While the two-way fixed-effects models are robust tools, they cannot explain how the inherent differences in the cells to which peacekeepers deploy may impact their effectiveness. In other words, while two-way fixed-effects models provide a reliable estimate,[94] they miss the variation within and across grids that influence how effectively peacekeepers can protect civilians.

I match areas treated by peacekeeping units with more women to those treated by peacekeeping units with fewer women. My analysis mitigates issues of propensity score matching[95] by instead employing cardinality matching, which improves the sensitivity test used to determine how biased the results are, among other benefits.[96] I match on covariates that either play a selection in the treatment or that could be associated with the outcome (violence against civilians). Accordingly, I match for standard covariates in the civil war and peacekeeping literature[97] and those that may plausibly affect the ability of peacekeepers to protect civilians from violence while also affecting rebel groups' choices to use violence against civil-

94. As long as the assumptions are met.
95. For more, see King and Nielsen 2019.
96. Visconti and Zubizarreta 2018; Carreras, Vera, and Visconti 2022.
97. Fjelde, Hultman, and Nilsson 2019.

ians.

Each of the following variables comes from PRIO's compilation of other data sources, aggregating the data to the same level as the PRIO-grid data used for peacekeeper deployment. Since peacekeeping units with more and fewer women may be likely to deploy to distinct locals, that would otherwise impact their ability and propensity to keep the peace. For example, consider how the gendered effects of peacekeeping could be conditioned by how prone one area is to violence before the arrival of peacekeepers, thus directly impacting how effective that unit is. Accordingly, I match on a six-month lag of the dependent variable (*Violence 6 Months Before*), which helps account for the baseline likelihood of violence upon arrival and for autocorrelation. More importantly, a six-month lag on violence is likely to have a strong effect on where women peacekeepers deploy, as female peacekeepers are sent to locations that are less prone to violence.[98]

Similarly, I account for population density, as more civilians means more people for peacekeepers to protect. My regressions further control for the amount of mountainous terrain as a proxy of navigation difficulty (*Avg. Mountain*),[99] the number of people per grid as a measure of the number of people peacekeepers protect (*Sum Population*),[100] and finally the travel time to the nearest city as a proxy for road and infrastructure conditions that could slow mechanized peacekeeping units (*Travel Time to City*).[101] All control variables are aggregated at the grid-month level, with missing values imputed with the average from all other instances of the variable, a common practice in the methods literature. My models control for the amount of urban area in a grid with *Urban*[102] as a proxy for urban environments since peacekeepers will have more physical objects to navigate around and patrol in more dense urban areas. I also measure nighttime lights as a proxy of economic activity (*Avg.*

98. Karim and Beardsley 2013.
99. Blyth 2002.
100. Center For International Earth Science Information Network-CIESIN-Columbia University, United Nations Food And Agriculture Programme-FAO, and Centro Internacional De Agricultura Tropical-CIAT 2005.
101. Uchida and Nelson 2009.
102. Bontemps, Defourny, and Van Bogaert 2009.

*Night Lights*),[103] an approach increasingly common in the civil war and comparative politics literature.[104] Finally, I control for a lag of peacekeepers to help account for selection effects (*PK Lag*).

In the models, I control for the same variables used for matching and other variables that may bias the outcome if not controlled for. For example, I also control for peacekeeper deployment lags, following Hultman et al. (2014) and Hinkkainen et al. (2021), since the deployment of peacekeepers one month can plausibly affect violence the next month.[105]

# 5    Gendered Effects

Who keeps the peace more effectively, men or women peacekeepers? In this paper, I find strong support for *H1* and *H2b*, but only moderate evidence of *H2a*. *H1* posits that increasing the absolute number of women peacekeepers will lead to fewer civilian deaths; the models testing *H1* are shown in Table 1. These results illustrate the effects of increasing the number of peacekeepers deployed by gender in peacekeeping missions.

|                                   | Rebel Violence (Binary) | Rebel Violence (Count) |
|                                   | Model 1                 | Model 2                |
|-----------------------------------|-------------------------|------------------------|
| Women PKs Deployed                | −0.008**                | −0.191**               |
|                                   | (0.003)                 | (0.097)                |
| Men PKs Deployed                  | −0.0001                 | −0.001                 |
|                                   | (0.0002)                | (0.007)                |
| N                                 | 317683                  | 317683                 |
| R-squared                         | 0.047                   | 0.019                  |
| Adj. R-squared                    | 0.037                   | 0.009                  |
| Residual Std. Error (df = 314400) | 0.039                   | 1.711                  |

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Table 1: TWFE Models Testing the Count of Peacekeepers. Standard errors clustered at the PRIO-Grid level.

103. Image and data processing by NOAA's National Geophysical Data Center. DMSP data collected by US Air Force Weather Agency.
104. Doll, Muller, and Morley 2006; Henderson, Storeygard, and Weil 2012.
105. Hultman, J. Kathman, and Shannon 2014; Hinkkainen Elliott, Polo, and Eustacia Reyes 2021.

Model 1 shows that men peacekeepers' effects on violence are indistinguishable from zero, while increasing the same number of women peacekeepers decreases the probability of OSV by rebel groups by 0.8 percentage points at the conventionally significant levels. This provides strong evidence that women peacekeepers play a crucial role in preventing outbreaks of violence. Moreover, when measuring peacekeepers' effects on the count of violence that occurs, we see an even stronger effect at statistically significant levels. Similar to Model 1, Model 2 in Table 1 shows that increasing the amount of men peacekeepers deployed has an insignificant effect on the outcome.

I note the strong likelihood of selection effects for peacekeepers in gendered and nongendered ways. Several papers[106] and most notably Ruggeri, Dorussen, and Gizelis show that peacekeepers explicitly deploy to so-called "hard-cases"[107] at both a national and subnational level. Hence, research designs that do not consider this can bias peacekeepers' impacts as being less effective than they are in reality, as they select into areas with a higher likelihood of civilian violence than locations without peacekeepers. Indeed, the two-way fixed effects models presented above cannot account for selection effects, which could explain the findings that men peacekeepers do not affect local violence. To address potential selection effects and reverse causality, I use an instrumental variable used in prior research as an alternative estimation of the impacts of women and men peacekeepers.[108]

In response to the nonrandom deployment of peacekeepers, Ruggeri, Dorussen, and Gizelis developed an instrumental variable that accounts for the selection of where peacekeepers deploy.[109] Ruggeri et al. propose an instrumental variable with potentially endogenous variables that, when interacted, are exogenous to the outcome while also explaining peacekeeper deployments. Advanced further by Fjelde, Hultman, and Nilsson, each paper proposes and uses an instrumental variable of *Total Peacekeepers in Africa* × *Distance to Capital*. The interaction between the variables is entirely exogenous of violence subnationally

106. Hultman, J. D. Kathman, and Shannon 2013; Costalli 2014; Fjelde, Hultman, and Nilsson 2019.
107. Ruggeri, Dorussen, and Gizelis 2018, 1008.
108. Ruggeri, Dorussen, and Gizelis 2017; Fjelde, Hultman, and Nilsson 2019.
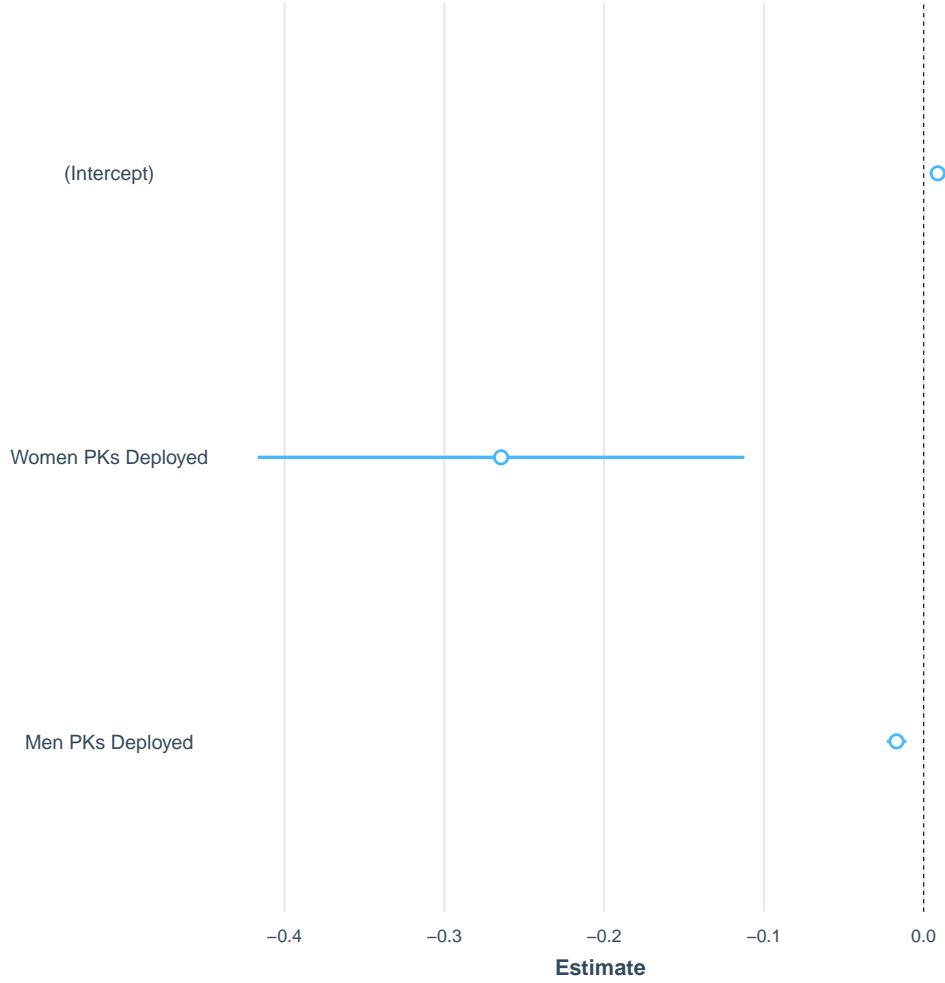109. Ruggeri, Dorussen, and Gizelis 2017.

Figure 3: Binary outcome of civilian death from rebels regressed on a continuous measure of peacekeepers deployed by gender when accounting for selection effects. Control variables were omitted, with full regression tables reported in the appendix.

while also explaining peacekeeper deployment; as the total supply of peacekeepers throughout Africa increases, it is easier to deploy subnationally. And, as the number of peacekeepers increases, it is also easier to deploy closer to a country's capital. Thus, with this interaction, my models can predict the deployment of peacekeepers to estimate local violence outcomes through a 2-stage least squares (2SLS) regression. While Ruggeri, Dorussen, and Gizelis and Fjelde, Hultman, and Nilsson do not distinguish between the gender of peacekeepers, I use the same instrument but broken down by the gender of the peacekeepers, thus estimating *Total women Peacekeepers in Africa × Distance to Capital*, and the reverse to estimate the

deployment of men peacekeepers. Replicating Fjelde, Hultman, and Nilsson, I logged the distance to the capital in kilometers and measured the total peacekeepers in Africa in the tens of thousands.

Figure 3 and 4 compare the results of women and men peacekeepers on the outcomes of the probability and count of civilian deaths, respectively. In the models, the gendered effects of peacekeepers on reducing violence against civilians hold when accounting for selection effects. With prior knowledge that peacekeepers select into "hard-cases,"[110] this change in estimates provides suggests that the instrument is accurately accounting for where peacekeepers select into.

Moreover, considering women peacekeepers are sent to easier cases,[111] the converse is thus true: men peacekeepers are sent into more demanding cases. With the instrument predicting the deployment location and number of peacekeepers subnationally, men peacekeepers are associated with an overall decrease in violence. However, that decrease is substantially smaller than the estimate for women peacekeepers. The instrumented estimates suggest that women peacekeepers are more than fifteen times more effective than their counterparts. An increase in one hundred men peacekeepers is associated with a 1.7% decrease in the probability of rebel violence against civilians, while the same increase in women peacekeepers is associated with a 26.5% reduction in the same probability. For statistical testing and complete output tables of the instrument, please refer to the Online Appendix.

*H2a* proposes that increasing the proportion of women peacekeepers will lead to more trust from the local population in peacekeepers, thus giving the units an improved chance of stopping rebel violence. The models in Table 2 and Figure 5 suggest that increasing the proportion of women peacekeepers may negatively impact violence, specifically for the binary outcome. However, the model measuring the count of fatalities lies just outside the 0.05 level of statistical significance. Although previous models mainly indicated that the only difference in deployment was the effect size by gender, these models provide evidence

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110. Ruggeri, Dorussen, and Gizelis 2018, 1008.
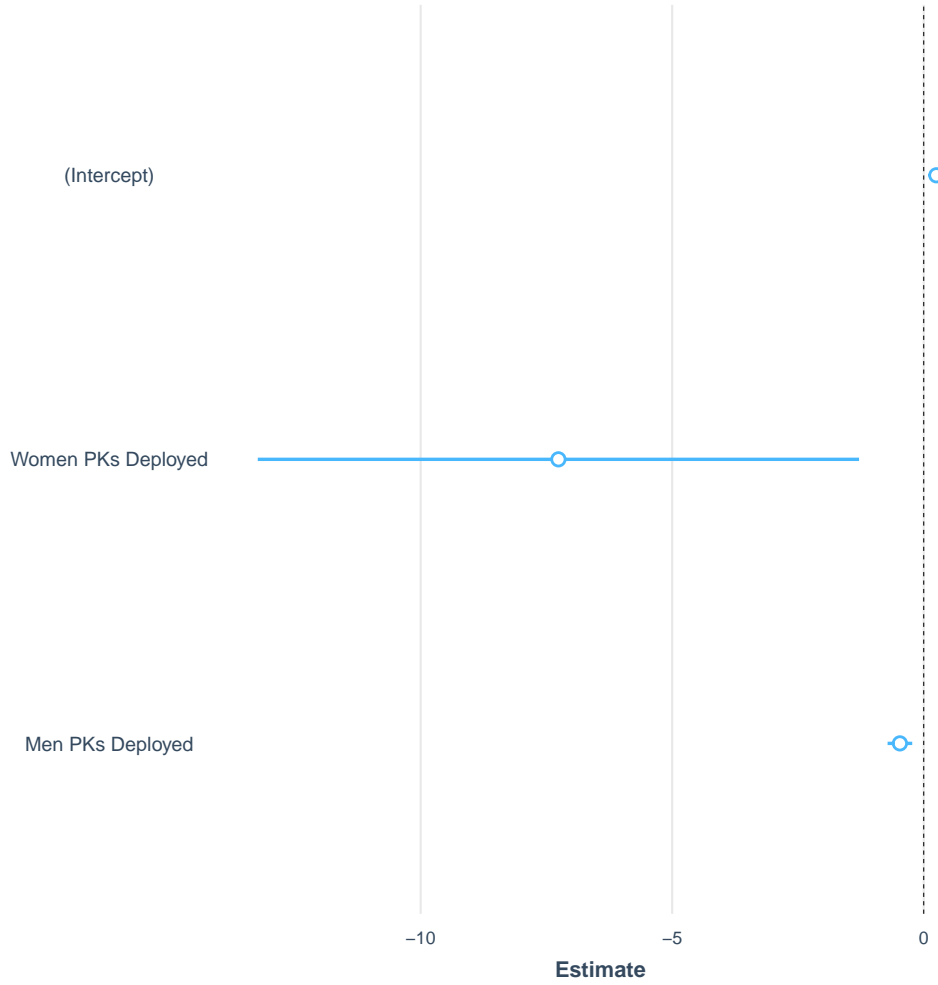111. Karim and Beardsley 2013.

Figure 4: Count outcome of civilian death from rebels regressed on a continuous measure of peacekeepers deployed by gender, when accounting for selection effects. Control variables omitted, with full regression tables reported in the appendix.

that increasing the proportion of women peacekeepers deployed is not distinguishable from zero. These results hold constant across the various models using proportional representation as the treatment and signify insufficient evidence to reject the null hypothesis. This could be due to threshold effects; in other words, rather than simply increasing the proportion of women, there may be a specific proportional number of women that changes peacekeeping effectiveness. Alternatively, using proportion as the treatment could mask the size effects of peacekeeping units, as two units with 20% women could have different overall troop numbers that help to keep the peace; as shown by Fjelde et al., the number of peacekeepers deployed
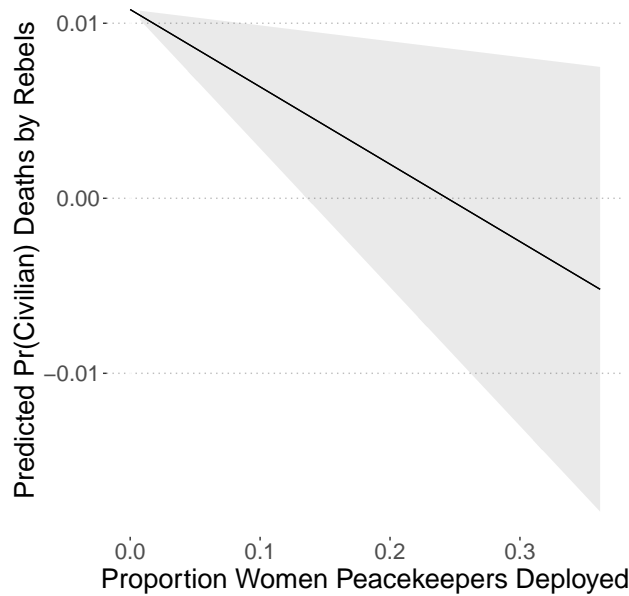
Figure 5: Predicted probability of violence based on the proportion of women peacekeepers deployed.

is essential.

*H2b*, on the other hand, asserts that gender-mixed peacekeeping units will, on average, reduce violence more than units with fewer women than the median. *H2a* and *H2b* both test similar ideas; that is, increasing the proportion of women in a peacekeeping unit will make it more effective, but in different ways. It is still possible that women and men are deployed to different areas that may otherwise bias the estimates of peacekeeping effectiveness. Thus, I employ cardinality matching to account for the different locales to which women and men peacekeepers are deployed.[112]

Instead of comparing three possible outcomes (untreated, treated by disproportionate unit, treated by mixed unit), I compare all locations "treated" by mixed units to those locations "treated" by disproportionate units. The results of these models can be found in Figure 6.

In Figure 7, I show the results of my cardinality matching using Loveplots. Matching is useful when units were unlikely to receive the same treatment based on observed covariates,

112. Visconti and Zubizarreta 2018.

| | Rebel Violence (B) | Rebel Violence (C) |
|---|---|---|
| | Model 1 | Model 2 |
| Prop. Women Deployed | −0.004** | −0.122* |
| | (0.002) | (0.072) |
| N | 317683 | 317683 |
| R-squared | 0.047 | 0.019 |
| Adj. R-squared | 0.037 | 0.009 |
| Residual Std. Error (df = 314401) | 0.039 | 1.711 |

***p < .01; **p < .05; *p < .1

Table 2: TWFE Models testing the effects of the proportion of women peacekeepers.

such as peacekeeping deployments. Moreover, matching reduces model dependence and helps estimates increase in reliability. My models match gender-mixed peacekeeping treatments with gender-disproportionate units. To define gender-mixed units, I give each observation a proportion of how many women are in the unit relative to the total unit size. A unit with 10 peacekeepers, of which 4 were women, would be scored as 0.4. All peacekeeping units in which the proportion of women was higher than the median are marked as gender-mixed, whereas those at or below the median threshold are marked as disproportionate.[113]

Beyond using matching to test *H2b*, I also employ a negative binomial logit model. Figure 6 presents the main analysis for the matched dataset. Broadly speaking, when gender-mixed peacekeeping units were deployed (the "control" unit is gender-disproportionate peacekeeping deployments), that unit was substantially more likely to prevent rebel violence than their gender-disproportionate counterparts. Transformed into odds ratios, these models show that peacekeeping deployments of units with more women decrease the likelihood of violence against civilians by rebel groups.

For the tables associated with the figures testing *H2b*, please refer to the online Appendix.

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113. The median proportion of women deployed when any peacekeeping unit is deployed sits at around 15.8%. Since matching and subsequent analyzes must be done with a binary measure of treatment, I dichotomize peacekeeping deployments of women and men into this classification.

Figure 6: Odds ratios on the risk of civilian deaths; logit models, matched data.

# 6  Conclusion

What effect do women peacekeepers have on rebel groups' propensity to use violence against civilians? Existing peacekeeping effectiveness research is agnostic as to whether there are gendered effects of peacekeepers; moreover, existing qualitative research on gender and peacekeepers does not engage with the various literature on peacekeeping effectiveness. In this paper, I have attempted to unify the relevant theoretical literature in both fields into a framework of how women peacekeepers drive local trust in PKOs, leading to more intelligence and, thus, greater operational effectiveness. I conclude that while men peacekeepers prevent violence at a local level, women peacekeepers have a substantially larger effect on reducing rebel violence against civilians.

Using the UCDP GED's violence data matched to RADPKO's peacekeeping data, I run three sets of analyses to understand the gendered effects of peacekeepers. My first analysis uses two-way fixed-effects models to estimate the impact of the count of women and men peacekeepers. The second sets of models use a similar analysis to determine the effect of the proportion of women peacekeepers. Finally, the third analyses uses optimal matching to reduce model dependency and bias among locations women and men peacekeepers deployed. Increasing the absolute number of women peacekeepers deployed has a disproportionately large effect on reducing violence compared to a similar increase in men peacekeepers. While the models do not support the hypothesis that increasing the proportion of women is important, the proportional effect of gender may have more to do with a minimum threshold, as the third set of models provide evidence that gender-mixed units are more effective than gender-disproportionate units.

The conclusions in this paper have implications for the future of UN peacekeeping operations. While affirming existing theories on why peacekeepers keep the peace, this paper also concludes that women peacekeepers are instrumental in reducing violence at even greater levels. This provides a clear path forward for troop-contributing countries and for UN decision-makers who decide where to send troops. The knowledge that women peacekeepers

provide such a substantial effect on reducing rebel OSV should affect policy makers and the UN as well. Institutions and states seeking to increase women's contributions to peace-keeping missions to further these goals should consider supporting existing programs such as Canada's Elsie Initiative for Women in Peace Operations.[114]

This research has limitations. For example, the sample size of women's deployment in peacekeeping operations is noticeably smaller than that of men's deployment due to the overall number of troops of each gender. With the smaller sample of women in the analyses, the confidence intervals and standard errors are much less precise than estimates of men peacekeepers. Furthermore, in my sample, women peacekeepers *never* appear without men peacekeeper counterparts deployed alongside them in the same grid-month observation, while men peacekeepers often deploy without women peacekeepers. This suggests that the strong effects of women peacekeepers may be contingent upon their co-deployment with men peacekeepers. While outside the scope of this paper, future research should examine the interactive effects between women and men peacekeepers both theoretically and empirically.

Importantly, I do not argue that the key to making peacekeepers more effective is the approach of "adding women and stirring." Normatively speaking, the burden of illicit activities by men peacekeepers should not fall on women. If the UN and troop-contributing countries want to increase the effectiveness of peacekeeping operations by adding women, they must also address men peacekeepers and their actions when women are not present. Moreover, within their home security institutions all the way to the UN, women face several barriers to their participation in peacekeeping operations. From issues of discrimination stemming from patriarchal attitudes to the unwillingness of commanders to send women peacekeepers to difficult situations where they may nonetheless affect change, women are both pushed away and actively removed from participating, and thus making those connections with locals. I echo Karim and Beardsley (2017), "that gender reforms in PKOs must not place all hope in the transformative potential of increasing the representation of women" (50). Despite these

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114. https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/gender_equality-egalite_des_genres/elsie_initiative-initiative_elsie.aspx?lang=eng

bevy of barriers, among others, I find that women peacekeepers are a substantial part of effectively keeping the peace, as their presence increases the number of civilians saved.

Peacekeeping works. With this research, I provide a novel causal identification of the gendered effects of peacekeepers. By interacting with civilians, women peacekeepers can increase trust and improve their operational effectiveness, saving lives and protecting civilians.

# Acknowledgements

# Replication

The dataset, codebook, and R files for the empirical analysis in this article can be found at https://github.com/skytheacademic/who_keeps_the_peace.

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# Appendix

# A   Models

In this paper, I run and analyze ten different models to test the three hypotheses. Below, I list each of the models ran and group them by the hypothesis they test. As stated in the manuscript, each model is calculated with robust standard errors clustered at the grid-cell level.

- *H1: Rebel violence against civilians should decrease as the number of women peacekeepers increases.*

    - **M1**: Method - TWFE; DV - Binary (<4 deaths); IV - Continuous measure of women and men peacekeepers.

    - **M2**: Method - TWFE; DV - Count; IV - Continuous measure of women and men peacekeepers.

    - **M3**: Method - 2SLS; DV - Binary (<4 deaths); IV - Continuous measure of women and men peacekeepers, estimated based on predictions from the instrumental variable.

    - **M4**: Method - 2SLS; DV - Count; IV - Continuous measure of women and men peacekeepers, estimated based on predictions from the instrumental variable.

- *H2a: Rebel violence against civilians should decrease as the proportion of women peacekeepers increases.*

    - **M5**: Method - TWFE; DV - Binary (<4 deaths); IV - Proportional measure of women peacekeepers.

    - **M6**: Method - TWFE; DV - Count; IV - Proportional measure of women peacekeepers.

- *H2b: When a gender-mixed peacekeeping unit is present, there will be less rebel violence than if a gender-disproportionate peacekeeping unit were present.*

    - **M7**: Method - Logit; DV - Binary (<4 deaths); IV - Gender-mixed and disproportionate units; Data - unmatched.

    - **M8**: Method - Logit: DV - Count; IV - Gender Mixed and disproportionate units; Data - unmatched.

    - **M9**: Method - Logit; DV - Binary (<4 deaths); IV - Gender-mixed and disproportionate units; Data - matched.

    - **M10**: Method - Logit: DV - Count; IV - Gender-mixed and disproportionate units; Data - matched.

I formalize the models below. Standard errors are clustered by grid ($\mu_g$) to account for within-unit correlation of the error term.

## A.1 TWFE Regression

$$Y_{gt} = \beta_1 \hat{x}_{gt}^{(f)} + \beta_2 \hat{x}_{gt}^{(m)} + \lambda_t + \mu_g + \epsilon_{gt} \tag{1}$$

Where:

- $Y_{gt}$ is the outcome variable indicating civilian deaths by rebels in a single month for grid $g$ in month $t$. In the binary outcome models, $Y_{gt}$ indicates whether at least five civilians died by rebel groups, and in the count outcome models, $Y_{gt}$ indicates the total number of civilian fatalities by rebels.

- $\hat{x}_{gt}^{(f)}$ and $\hat{x}_{gt}^{(m)}$ represent the values of women and men peacekeepers deployed for grid $g$ in month $t$, respectively.

- $\lambda_t$ represents the fixed effects for time (month).

- $\mu_g$ represents the fixed effects for the spatial units (grids).

- $\epsilon_{gt}$ is the error term for grid $g$ in month $t$.

## A.2   2SLS Regression

### A.2.1   First Stage Equations

For women peacekeepers:

$$\hat{x}_{gt}^{(f)} = \alpha_0 + \alpha_1 Z_{gt}^{(f)} + \epsilon_{1gt} \tag{2}$$

For men peacekeepers:

$$\hat{x}_{gt}^{(m)} = \beta_0 + \beta_1 Z_{gt}^{(m)} + \epsilon_{2gt} \tag{3}$$

## Second Stage Equation

$$Y_{gt} = \gamma_0 + \gamma_1 \hat{x}_{gt}^{(f)} + \gamma_2 \hat{x}_{gt}^{(m)} + \mathbf{X}_{gt}\beta + v_{gt} \tag{4}$$

Where:

- $\alpha_0$ and $\beta_0$ are the grand mean intercepts for the first stage equations.

- $\gamma_0$ is the grand mean intercept for the second stage equation.

- $Z_{gt}^{(f)}$ and $Z_{gt}^{(m)}$ are the instrumental variables for predicting the deployment of women and men peacekeepers for grid $g$ in month $t$, respectively. The instrument for women is the interaction between total women peacekeepers in Africa in month $t$ and the distance to capital for grid $g$, and the instrument for men uses the total men peacekeepers in Africa interacted with the distance to capital for grid $g$.

- $\hat{x}_{gt}^{(f)}$ and $\hat{x}_{gt}^{(m)}$ are the fitted values from the first stage for women and men peacekeepers deployed for grid $g$ in month $t$, respectively.

- $Y_{gt}$ is the outcome variable indicating civilian deaths by rebels in a single month for grid $g$ in month $t$. In the binary outcome models, $Y_{gt}$ indicates whether at least five civilians died by rebel groups, and in the count outcome models, $Y_{gt}$ indicates the total number of civilian fatalities by rebels.

- $\mathbf{X}_{gt}$ represents the matrix of control variables for grid $g$ in month $t$.

- $\epsilon_{1gt}$ and $\epsilon_{2gt}$ are the error terms for the first stage regressions for women and men, respectively, for grid $g$ in month $t$.

- $v_{gt}$ is the error term uncorrelated with $\hat{x}_{gt}^{(f)}$, $\hat{x}_{gt}^{(m)}$, and $\mathbf{X}_{gt}$.

## A.3   Negative Binomial Regression

$$\log(Y_{gt}) = \beta_0 + \beta_1 \hat{x}_{gt} + \mathbf{X}_{gt}\beta \tag{5}$$

Where:

- $Y_{gt}$ is the outcome variable indicating civilian deaths by rebels in a single month for grid $g$ in month $t$. In the binary outcome models, $Y_{gt}$ indicates whether at least five civilians died by rebel groups, and in the count outcome models, $Y_{gt}$ indicates the total number of civilian fatalities by rebels.

- $\log(\mu_{gt})$ represents the natural logarithm of the expected count, serving as the link function in the negative binomial regression model.

- $\beta_0$ is the grand mean intercept.

- $\beta_1$ is the coefficient for the treatment effect of the variable $\hat{x}_{gt}$.

- $\hat{x}_{gt}$ is the treatment variable, indicating the presence and effect of a gender-mixed peacekeeping unit for grid $g$ in month $t$, treated as a fitted or predicted value. When $\hat{x}_{gt}$ is held at zero, this indicates the presence of gender-disproportionate peacekeeping unit.

- $\mathbf{X}_{gt}$ represents the matrix of control variables for grid $g$ in month $t$.

# B   Instrumental Variable Robustness Check and Results Table

In this section, I show all relevant results to the robustness check. First, I explain the test of the instrument, and show the relevant test statistics. Second, I show the results of the models.

In Tables 3 and 4, I show the first stage results to focus on the F-Statistic (with other coefficients and statistics omitted), which indicates each of the instruments are a strong predictor of their corresponding treatment. To know whether an instrument is strong and thus whether it will provide reliable estimates, Stock, Wright, and Yugo devised an easily interpretible test of the proposed instrument.[115] During the first stage of a 2-stage, least squares (2SLS) model, the F Statistic provides a strong indicator of the relative power of the instrument. Instruments with an F Statistic greater than 10 mean that the estimates of the instrument are reliable, while those below 10 generally are not. The F Statistics for the instruments determining women and men peacekeeper deployments are well above the commonly accepted threshold of 10, meaning the instrument is likely to provide reliable estimates in the second stage of the models.

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115. Stock, Wright, and Yogo 2002.

Table 3: 1st Stage of Count Instrument

|  | Women Deployed Model 1 | Men Deployed Model 2 |
|---|---|---|
| Women in Africa x Distance to Capital | 0.005*** (0.0002) | |
| Men in Africa x Distance to Capital | | −0.010*** (0.0005) |
| F Statistic (df = 1; 317681) | 491.296*** | 435.832*** |

***p < .01; **p < .05; *p < .1

Table 4: 1st Stage of Prop. Instrument

|  | Women Deployed Model 1 | Men Deployed Model 2 |
|---|---|---|
| Prop. Women in Africa x Distance to Capital | 0.059*** (0.002) | |
| Prop. Men in Africa x Distance to Capital | | −0.375*** (0.005) |
| F Statistic (df = 1; 317681) | 860.379*** | 5825.942*** |

***p < .01; **p < .05; *p < .1

Table 5: IV Models for Hypotheses 1/2a

|  | (Binary DV) | (Count DV) | (Binary DV) | (Count DV) |
|---|---|---|---|---|
| Women PKs Deployed | −0.264*** | −7.262** | | |
|  | (0.078) | (3.049) | | |
| Men PKs Deployed | −0.017*** | −0.474*** | | |
|  | (0.003) | (0.125) | | |
| Prop. Women PKs Deployed | | | 0.015 | 0.542 |
|  | | | (0.019) | (0.681) |
| Avg. Mountain | 0.006*** | 0.088*** | 0.006*** | 0.099*** |
|  | (0.001) | (0.030) | (0.001) | (0.029) |
| Travel Time Nearest City | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
|  | (0.000) | (0.000) | (0.000) | (0.000) |
| Perc. Urban | 0.0003 | 0.016 | 0.0001 | 0.009 |
|  | (0.0005) | (0.026) | (0.0005) | (0.026) |
| PK Lag | 0.000* | 0.000** | 0.000 | 0.000* |
|  | (0.000) | (0.000) | (0.000) | (0.000) |
| Violence 6 Months Before | 0.0003*** | 0.008*** | 0.0003*** | 0.008*** |
|  | (0.000) | (0.001) | (0.000) | (0.001) |
| Constant | 0.009*** | 0.251*** | 0.001*** | 0.032** |
|  | (0.002) | (0.068) | (0.0004) | (0.013) |

*p < .1; **p < .05; ***p < .01

# C Results Tables

See below for the models testing *H3* explicated in the main paper and in Section A of this appendix. Each of the models in Table 6 correspond with their numbers in Section A, e.g., Model 7 of Table 6 refers to Model 7 of Section A.

Table 6: Models Testing Hypothesis 3

| | Logit | | | |
|---|---|---|---|---|
| | (Binary DV) | (Count DV) | (Binary DV) | (Count DV) |
| | (7) | (8) | (9) | (10) |
| Gender-mixed PK Unit | −0.449 | −0.285 | −1.305*** | −0.825* |
| | (0.278) | (0.445) | (0.404) | (0.470) |
| Unbalanced PK Unit | 1.001*** | 0.650*** | | |
| | (0.130) | (0.234) | | |
| Avg. Mountain | 1.943*** | 1.019*** | 2.288*** | 0.830 |
| | (0.233) | (0.296) | (0.389) | (0.524) |
| Travel Time Nearest City | −0.002*** | −0.002*** | 0.001** | 0.001 |
| | (0.0003) | (0.0004) | (0.0005) | (0.001) |
| Perc. Urban | −0.006 | −0.123 | 0.411 | 0.160 |
| | (0.146) | (0.148) | (0.280) | (0.375) |
| Night Lights | | | −26.498** | −7.966 |
| | | | (12.169) | (11.726) |
| Population Sum | | | 0.000 | 0.000 |
| | | | (0.000) | (0.000) |
| Population Density | | | 0.001 | 0.0001 |
| | | | (0.004) | (0.003) |
| PK Lag | 0.0001 | 0.0002** | 0.650** | 0.608 |
| | (0.0001) | (0.0001) | (0.332) | (0.557) |
| Violence 6 Months Before | 0.006*** | 0.025*** | 0.005*** | 0.020*** |
| | (0.0002) | (0.0003) | (0.0005) | (0.001) |
| Constant | −5.866*** | −2.638*** | −5.289*** | −2.770*** |
| | (0.142) | (0.232) | (0.778) | (1.036) |

*p < .1; **p < .05; ***p < .01

# D  TWFE Robustness

Recently, several authors have identified issues with two-way fixed-effects regressions; namely, that the models are not robust to treatment effect heterogeneity.[116] Models are biased when they compare units that are post-treatment with those newly treated, as two-way fixed effects models do. Thus, this section presents the results of the TWFE models with all post-treatment units removed.

Table 7: TWFE Models Testing the Count of Peacekeepers

|  | Rebel OSV (B) | Rebel OSV (C) |
|  | Model 1 | Model 2 |
| --- | --- | --- |
| Women PKs Deployed | −0.042 | −4.099 |
|  | (0.047) | (4.310) |
| Men PKs Deployed | 0.0003 | 0.125 |
|  | (0.002) | (0.167) |
| N | 293673 | 293673 |
| R-squared | 0.055 | 0.023 |
| Adj. R-squared | 0.044 | 0.012 |
| Residual Std. Error (df = 290390) | 0.035 | 1.529 |

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Table 8: TWFE Models Testing the Proportion of Peacekeepers

|  | Rebel OSV (B) | Rebel OSV (C) |
|  | Model 1 | Model 2 |
| --- | --- | --- |
| Prop. Women Deployed | −0.007$^{**}$ | −0.234$^{*}$ |
|  | (0.003) | (0.126) |
| N | 293673 | 293673 |
| R-squared | 0.055 | 0.023 |
| Adj. R-squared | 0.044 | 0.012 |
| Residual Std. Error (df = 290391) | 0.035 | 1.529 |

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

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116. See, for example, Callaway and Sant'Anna (2021) and Roth et al. (2023).

# E    Standardized Differences Within Matching

To visually demonstrate the standardized differences between the matched and non-matched data, refer to Figure 7. With lower standardized differences between the treated and control groups, the cardinality matching decreases bias and model dependence.
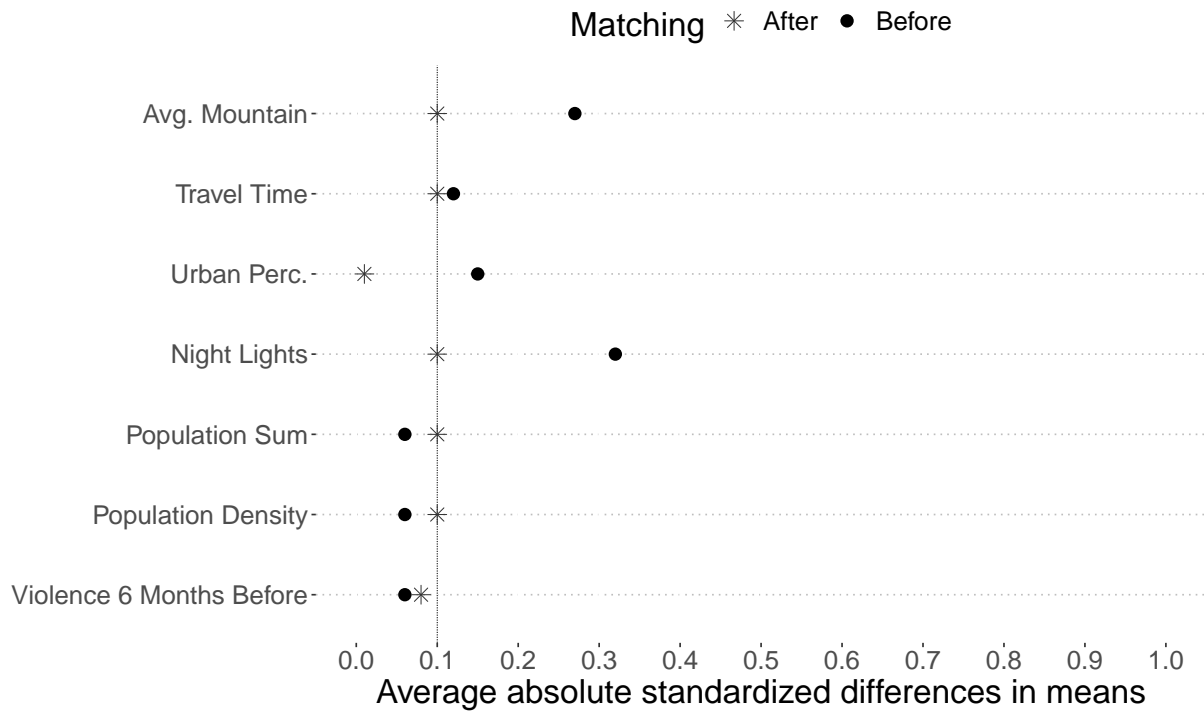


Figure 7: Loveplot of the standardized differences before and after matching.

# F  Government OSV

As a robustness check against my claim that peacekeepers are unlikely to have any effect on reducing government violence against civilians, I run the same models as the main part of my analysis but with government violence against civilians as the outcome. See below for the results tables.

Table 9: TWFE Models Testing the Count of Peacekeepers

|  | GOV OSV (B) | GOV OSV (C) |
|---|---|---|
|  | Model 1 | Model 2 |
| Women PKs Deployed | −0.001 | 0.239 |
|  | (0.003) | (0.399) |
| Men PKs Deployed | 0.0002 | −0.009 |
|  | (0.0002) | (0.020) |
| N | 317683 | 317683 |
| R-squared | 0.025 | 0.010 |
| Residual Std. Error (df = 314400) | 0.028 | 1.949 |

***p < .01; **p < .05; *p < .1

Table 10: TWFE Models Testing the Proportion of Peacekeepers

|  | GOV OSV (B) | GOV OSV (C) |
|---|---|---|
|  | Model 1 | Model 2 |
| Prop. Women Deployed | 0.001 | 0.088 |
|  | (0.002) | (0.115) |
| N | 317683 | 317683 |
| R-squared | 0.025 | 0.010 |
| Residual Std. Error (df = 314401) | 0.028 | 1.949 |

***p < .01; **p < .05; *p < .1

## Table 11: Matched Logit Models

| | GOV OSV (B) Model 1 | GOV OSV (C) Model 2 |
|---|---|---|
| Gender-mixed PK Unit | 0.741*** | 1.047** |
| | (0.218) | (0.478) |
| Avg. Mountain | 0.814** | 1.524** |
| | (0.338) | (0.708) |
| Travel Time Nearest City | 0.002* | −0.001 |
| | (0.001) | (0.002) |
| Perc. Urban | 0.848*** | 1.173*** |
| | (0.215) | (0.433) |
| Night Lights | −44.318*** | −18.671 |
| | (11.205) | (22.292) |
| Population Sum | 0.0001 | 0.00000 |
| | (0.0001) | (0.00000) |
| Population Density | −0.273 | −0.012 |
| | (0.192) | (0.011) |
| PK Lag | 0.543* | 0.924 |
| | (0.309) | (0.747) |
| Violence 6 Months Before | 0.005*** | 0.013*** |
| | (0.0004) | (0.002) |
| Constant | −4.651*** | −2.672* |
| | (0.618) | (1.396) |
| N | 13778 | 13778 |
| Log Likelihood | −421.275 | −5617.574 |
| AIC | 862.550 | 11255.150 |

***p < .01; **p < .05; *p < .1