

Epidemiology Analysis on the Fatality of UN Peacekeepers

Analyse épidémiologique de la mortalité des soldats de la paix de l'ONU

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Abstract

Objective: To understand the characteristics of fatality in UN peacekeeping operations.

Methods: Casualty data from 1948 to 2021 were collected from the United Nations public website, and the temporal and spatial characteristics of death and the trend of fatality were analyzed.

Results: By June 2021, there had been 71 UN peacekeeping missions (including current 12 missions), with a total loss of 4,121 peacekeepers. Among them, 1,392 (34%) died of illness, 1,366 (33%) died from accidents and 1,069 (26%) died from malicious act. Most peacekeepers died in Lebanon (322), Sultan (294), D.R. of the Congo (251), etc. The two contributing countries with the most deaths were India (99) and Bangladesh (94). The annual death toll is between 62 and 100 since 2005 (median 81; average 80). The absolute death toll has been rising year by year, but the overall fatality rate of global peacekeepers showed a downward trend in the 30 years after the Cold War. In the past decade, the overall fatality rate of global peacekeeping operations turned into a stable status at around 1.5‰.

Conclusion: Study shows that illness death and accident death (car accidents, etc.) are the main reasons for the sacrifice of UN peacekeepers. In the past 30 years after the Cold War, the total death toll has been increasing, but the total fatality rate is generally on decline. Illness and accident prevention are important ways to ensure the safety of peacekeepers.

Keywords: United Nations peacekeeping operations, fatality, peacekeeping medical support; epidemiology

Résumé

Objectif : comprendre les caractéristiques de la mortalité dans les opérations de maintien de la paix des Nations Unies.

Méthodes : Les données sur les victimes de 1948 à 2021 ont été recueillies sur le site Web public des Nations Unies, et les caractéristiques temporelles et spatiales des décès ainsi que la tendance de la mortalité ont été analysées.

Résultats : En juin 2021, 71 missions de maintien de la paix de l'ONU avaient été menées (y compris les 12 missions actuelles), avec une perte totale de 4 121 soldats de la paix. Parmi eux, 1 392 (34 %) sont décédés des suites d'une maladie, 1 366 (33 %) sont morts d'un accident et 1 069 (26 %) sont décédés à la suite d'un acte de malveillance. La plupart des soldats de la paix sont morts au Liban (322), au Sultanat (294), en République démocratique du Congo (251), etc. Les deux pays contributeurs ayant enregistré le plus grand nombre de décès sont l'Inde (99) et le Bangladesh (94). Le nombre annuel de décès se situe entre 62 et 100 depuis 2005 (médiane 81 ; moyenne 80). Le nombre absolu de décès a augmenté d'année en année, mais le taux global de mortalité des soldats de la paix dans le monde a connu une tendance à la baisse au cours des 30 années qui ont suivi la guerre froide. Au cours de la dernière décennie, le taux de mortalité global des opérations de maintien de la paix s'est stabilisé autour de 1,5‰.

Conclusion : L'étude montre que les décès dus à la maladie et aux accidents (accidents de voiture, etc.) sont les principales raisons du sacrifice des soldats de la paix de l'ONU. Au cours des 30 dernières années, après la guerre froide, le nombre total de décès a augmenté, mais le taux de mortalité total est généralement en baisse. La prévention des maladies et des accidents est un moyen important de garantir la sécurité des soldats de la paix.

Mots-clés : Opérations de maintien de la paix des Nations unies, mortalité, soutien médical au maintien de la paix ; épidémiologie

1. Introduction

United Nations peacekeeping operation (UN PKO) was initiated in 1948 when the Security Council authorized the deployment of UN military observers to the Middle East. Since then, there have been 71 United Nations peacekeeping missions including current 12 missions.^[1, 2] Over the

years, hundreds of thousands of military personnel, as well as tens of thousands of UN police and other civilians from more than 120 countries have participated in UN peacekeeping operations.^[3] Increase was captured in number and scale of peacekeeping operations conducted especially during the past three decades after the Cold War. Peacekeeping mission areas are usually characterized by political unrest, frequent armed conflicts, underdeveloped economy, low medical and health levels, etc.^[4] Peacekeepers face life and health

threats such as malicious attacks, accidents, disease spreading, turbulent social environment, treatment delay, etc.^[5] While there are increased concerns voiced for the safety risk of UN peacekeeping operations^[1], there is little understanding about the actual casualty epidemiology and any changes in these over time. Analyzing characteristics of UN peacekeepers' casualties has enlightenment and reference significance for the security of peacekeepers in the future. This study aimed to assess distribution and trends of peacekeeper deaths.

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2. Materials and methods

This is an observational and descriptive study.

Study population

This study includes all kinds of United Nations personnel serving in Peacekeeping Missions and Special Political Missions in the field, which includes the United Nations military, police, government-provided personnel (including government-provided corrections personnel and non-uniformed civilian government-provided personnel), and civilian personnel (including international civilian personnel, locally recruited civilian personnel, consultants, individual contractors, interns, and United Nations volunteers).^[6]

Data collection and definition

The publicly available data for death in UN peacekeeping missions from 1948 to June 2021 were extracted from the database of UN's official website (<https://peacekeeping.un.org/en/fatalities>). Fatality referred to death. Variables of fatality data set included unique casualty identifier, incident date, mission acronym, type of casualty, type of appointment and type of incident. Incident types were defined as four kinds of reasons leading to death including accident, illness, malicious act and the others. Data extraction was performed and checked by two independent reviewers.

Data analysis

All data were transferred from online UN's official website into Microsoft Excel and SPSS Statistic 2017. Fatality counts, frequency and percentage were calculated by mission, casualty nationalities, year, incident type, and/or appointment type. Charts and graphs on UN fatalities were constructed to show the temporal and spatial trends. All data are anonymous and do not allow identifying individual subject. The study does not involve ethical issues such as animal experiments, and there are no relevant conflicts of interests.

3. Results

3.1 Death causes

As of June 30, 2021, UN peacekeepers' total death toll was 4121. Among them, 1392 people died of illness (34%), 1366 people died from accidents (33%), and 1069 people died from malicious act (26%). (Figure 1)

During the three decades after the Cold War ended, the accident fatality rate has gradually decreased. After the 21st century, the illness fatality rate has been at a high level. In the recent decade, the fatality rate from malicious act has been at a high level. (Figure 2)

3.2 Geographic Distribution of Death

Among the 71 UN peacekeeping missions, there were 15 missions with more than 100 deaths and 6 missions with more than 50 deaths. The largest number of deaths occurred in the D.R. of the Congo, with a total of 633 deaths, including 249 deaths in the 1960-1964 mission (ONUC), 161 deaths in the 1999-2010 mission (MONUC), and 223 deaths in the 2010-present mission (MONUSCO). Secondly, 452 people died in Sudan and South Sudan, including 60 in the former Sudan (UNMIS, 2005-2011), 294 in the Darfur mission (UNAMID, 2007-present), and 98 in South Sudan (UNMIS, 2011-present). 322 people died in Lebanon (UNIFIL, 1978-present). 251 people died in Mali (MI-

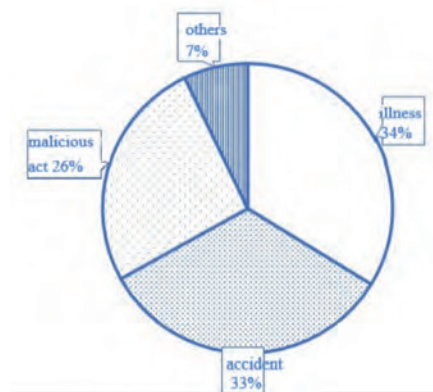


Figure 1: Percentage of death by causes in UN peacekeeping operations from 1948 to 2021

NUSMA, 2013-present). 213 people died in Former Yugoslavia (UNPROFOR, 1992-1995). 204 people died in Liberia (UNMIL, 2003-2018). (Figure 3)

The top ten mission areas with the highest total deaths are Lebanon (UNIFIL, 1978-present), Darfur (UNAMID, 2007-present), Mali (MINUSMA, 2013-present), D.R. of the Congo (ONUC, 1960-1964), D.R. of the Congo (MONUSCO, 2010-present), Former

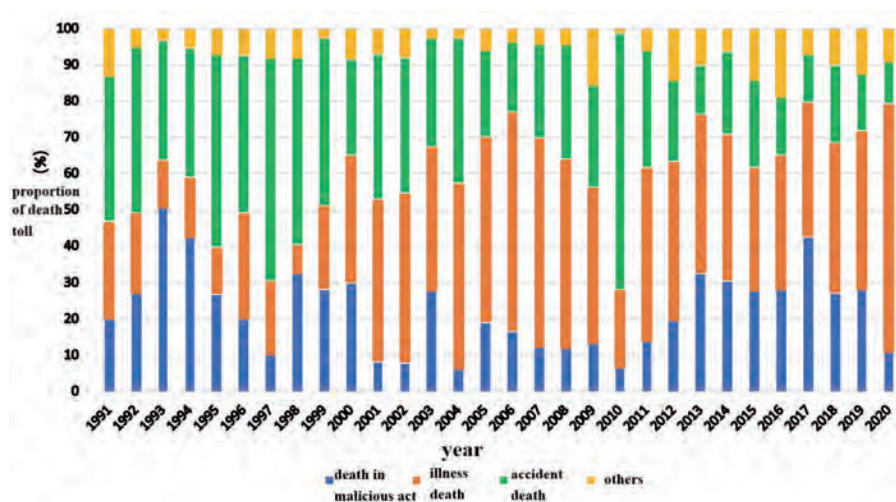


Figure 2: Proportion of various deaths during the 30 years after the Cold War

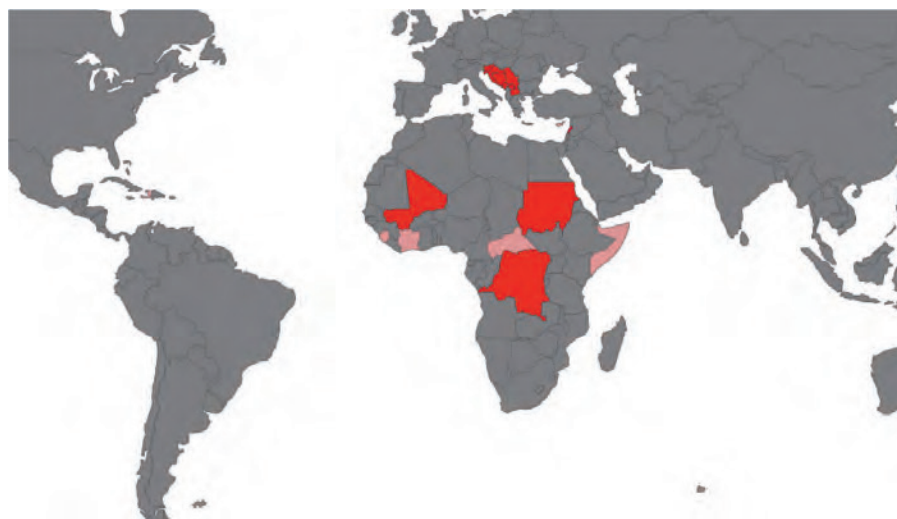


Figure 3: Main mission areas with deaths from 1948 to 2021

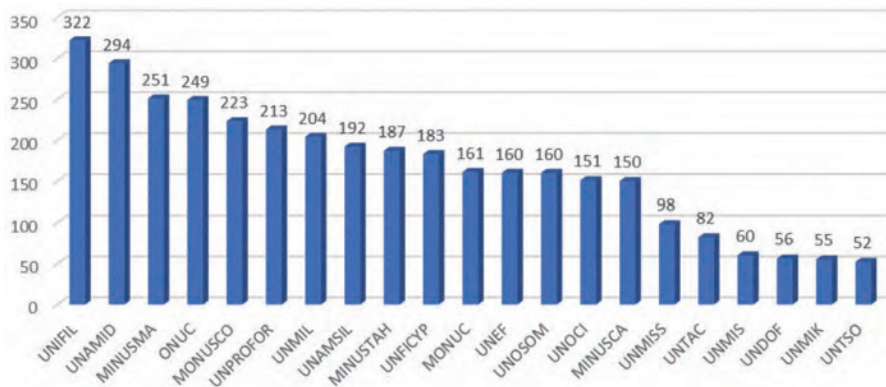


Figure 4: 21 countries or regions with more than 50 deaths from 1948 to 2021

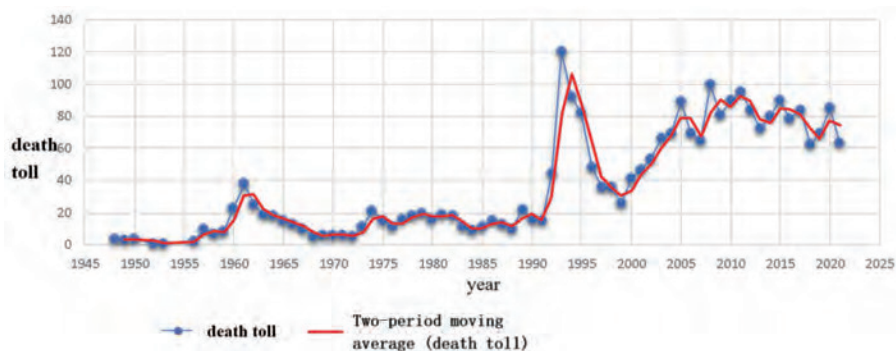


Figure 5: Trend of death toll over the years

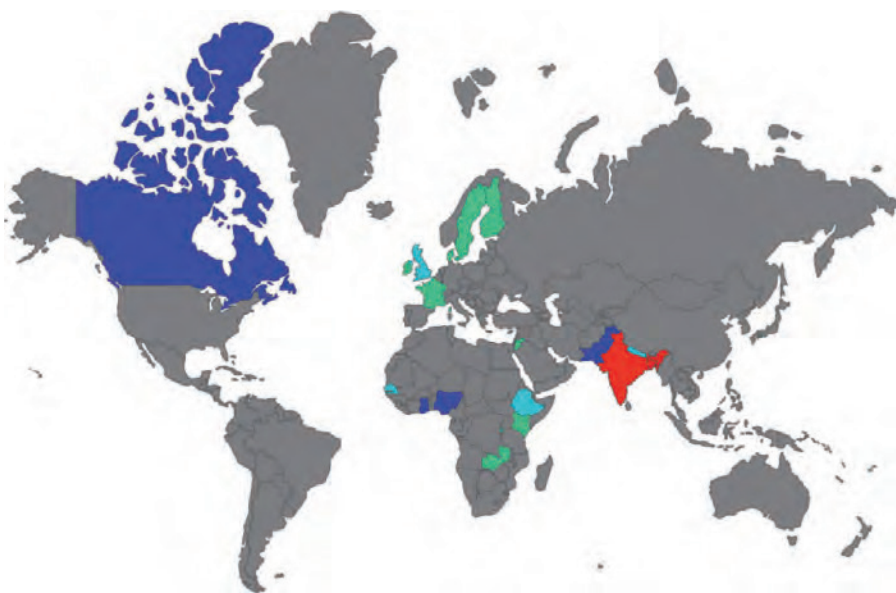


Figure 6: Top 20 peacekeeping countries with the highest deaths from 1948 to 2021

Yugoslavia (UNPROFOR, 1992-1995), Liberia (UNMIL, 2003-2018), Sierra Leone (UNAMSIL, 1999-2005), Haiti (MINUSTAH, 2004-2017) and Cyprus (UNFICYP). The top ten mission areas with the lowest total deaths are Haiti (BINUH, 2019-present), the United Nations Peace-building Support Office in the Central African Republic (BONUCA), Haiti (MICAH), Haiti (MINUJUSTH, 2017-2019), Syria (OSE-Syria), Iran and Iraq (UNILMOG, 1988-1991), the United Nations Mine Action (UNMA), Sudan (UNMAO), the

United Nations Office to the African Union (UNOAU), the United Nations Office for West Africa and the Sahel (UNOWAS), the United Nations police support group mission (UNPSG, 1997-1998), Haiti (UNSMIH), Syria (UNSMIS). (Figure 4)

3.3 Temporal Distribution of Death

From 1948 to June 2021, the death toll showed an overall upward trend. From the Second World War to the Cold War (1945-1990), the death toll in most years was less

than 20; However, there was a small peak in the death toll in the first half of the 1960s (38 deaths in 1961). After the collapse of the former Soviet Union (1991), the annual death toll increased sharply, peaked in 1993 (120 deaths, the year with the largest number of deaths), and then fell to the original level. After the "9-11 incident" (2001) in the United States, the annual death toll rose for the third time, and basically remained at a high level after 2005 (89 deaths). Since 2005, the annual death toll has ranged from 62 to 100 (median 81; average 80). (Figure 5)

3.4 Nationality Distribution of Death

There are deaths in 130 contributing countries. The two countries with the largest deaths are India (99) and Bangladesh (94) (red in Figure 6), followed by Ghana (88), Nigeria (87), Pakistan (82) and Canada (80) (dark blue in Figure 6). Besides Canada, the western developed countries with a high death toll include Britain (68), Ireland (54), France (48), Sweden (46), Denmark (44) and Finland (41). American death toll is 39 and Chinese is 20.

3.5 Fatality rate Analysis

There has been 30 years past after the Cold War. In the first decade (1991-2000), the number of global peacekeepers increased firstly and then decreased, reaching its peak in 1993. In the second decade (2001-2010), the number was increasing year by year. In the third decade (2011-2020), the number was generally stable and maintained at over 8000. Similar to the number of global peacekeepers, global peacekeepers' death toll increased firstly and then decreased in the first decade (1991-2000), reaching its peak in 1993. In the second decade (2001-2010), the number was increasing year by year. In the third decade (2011-2020), the number remained stable and maintained at over 100. (Figure 7) However, during the 30 years after the Cold War, the total fatality rate of global peacekeepers was on the decline. In the first decade (1991-2000), the total fatality rate increased firstly and then decreased, reaching its peak in 1995. In the second decade (2001-2010), the total fatality rate decreased year by year, but there was a reversion in the two years after the "9-11 incident". In the third decade (2011-2020), the total fatality rate remained stable and maintained at about 1.5 ‰. (Figure 8) In the first two decades after the Cold War (1991-2010), the global peacekeepers' ill-

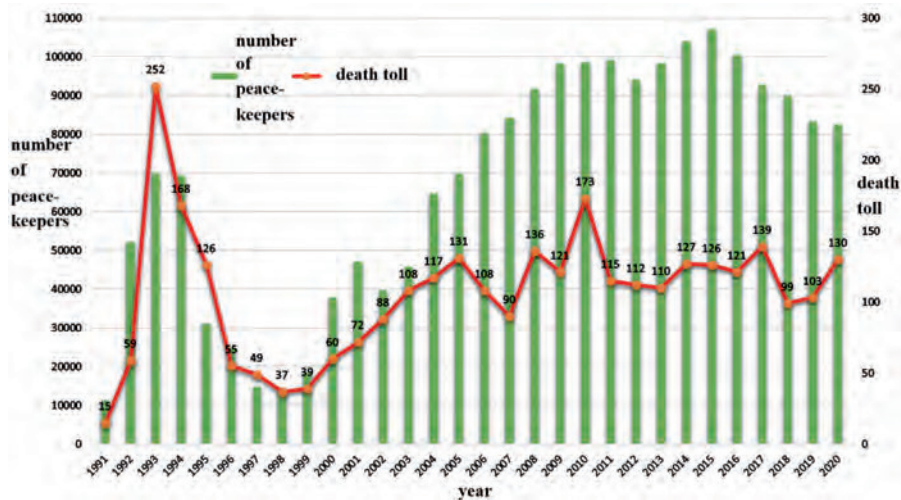


Figure 7: Annual number of global peacekeepers and death toll during the 30 years after the Cold War

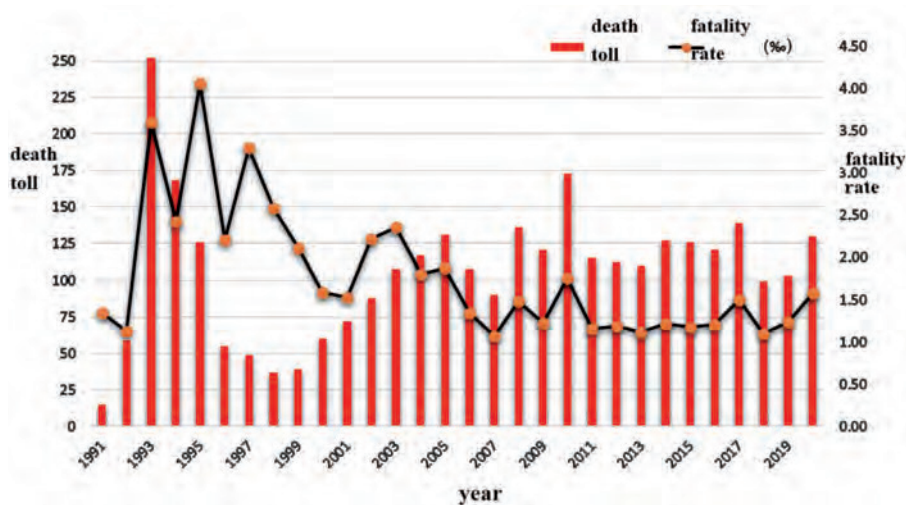


Figure 8: Annual global peacekeepers' death toll and total fatality rate during the 30 years after the Cold War

ness fatality rate fluctuated greatly (0.21 % record high in the past 30 years. (Figure 9)

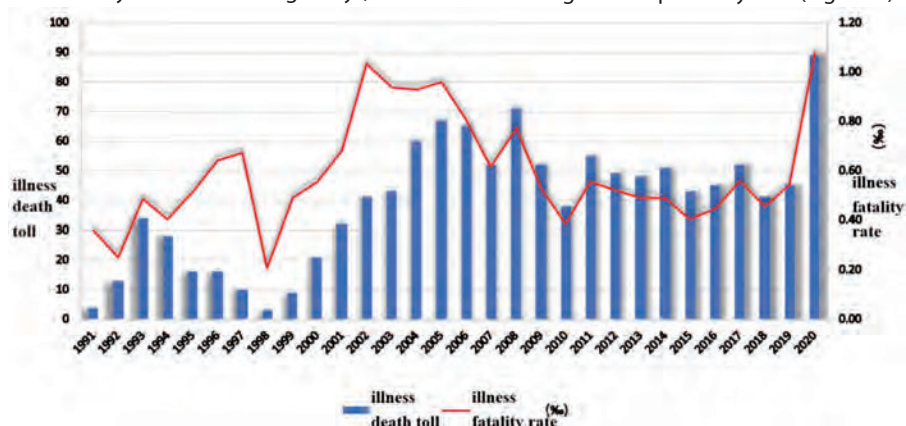


Figure 9: Annual global peacekeepers' illness death toll and fatality rate during the 30 years after the Cold War

-1.03 %), which sometimes was high and sometimes low. In the past decade (2011-2020), the illness fatality rate of global peacekeepers has been relatively stable, fluctuating around 0.5 %. However, in 2020, it suddenly rose sharply to 1.08 %, a

During the 30 years after the Cold War, the fatality rate of global peacekeepers in malicious act was on the decline. In the first decade (1991-2000), the fatality rate of global peacekeepers in malicious act increased firstly and then decreased, reaching its

peak in 1993. In the second decade (2001-2010), the fatality rate was at a low level (0.11 ‰ -0.22 ‰), and increased in some years (0.65 ‰ in 2003 and 0.36 ‰ in 2005). In the third decade (2011-2020), the fatality rate was generally stable, but the average death toll (0.33 ‰) was higher than that (0.20 ‰) in the second decade (2001-2010). (Figure 10)

In the 30 years after the Cold War, the global peacekeepers' accident fatality rate was generally on the decline. In the first decade (1991-2000), the accident fatality rate increased firstly and then decreased, reaching its peak in 1995 (2.16 ‰). In the second decade (2001-2010), the accident fatality rate decreased, but there was a reversion in 2010 (1.24 ‰). In the third decade (2011-2020), the accident fatality rate was generally stable, and the average accident fatality rate remained around 0.24 ‰. (Figure 11)

4. Discussion

Peacekeepers serve in harsh conditions and at great personal risk. This study analyzes the deaths of UN peacekeeping personnel since 1948, and obtains the temporal and spatial distribution of the death toll and the trend of fatality rate in recent 30 years. Generally speaking, illness and accident death (car accidents, etc.) are the main causes of peacekeepers' death. The total death toll has been rising, but the total fatality rate has declined as a whole.

The total number of deaths has increased year by year, and the main reason may be that the total number of peacekeeping personnel has increased year by year^[7]. The total fatality rate is generally low and has remained relatively stable in the past 10 years. The finding shows that although there have been a lot of serious casualties and malignant events, such as the explosion in Mali in recent years, the local situation is unstable, but on the whole, the global peacekeeping situation is toward stabilization.

Peacekeepers died mainly in D.R. of the Congo, Sudan, South Sudan, Lebanon, Mali and Former Yugoslavia mission areas. China has peacekeepers in the above regions (except Former Yugoslavia), and we should pay high attention to the safety of peacekeepers. Those dead peacekeepers mainly came from the developing countries such as India, Bangladesh, Ghana, Nigeria and Pakistan. These countries dispatched large peacekeepers. The follow-up studies will

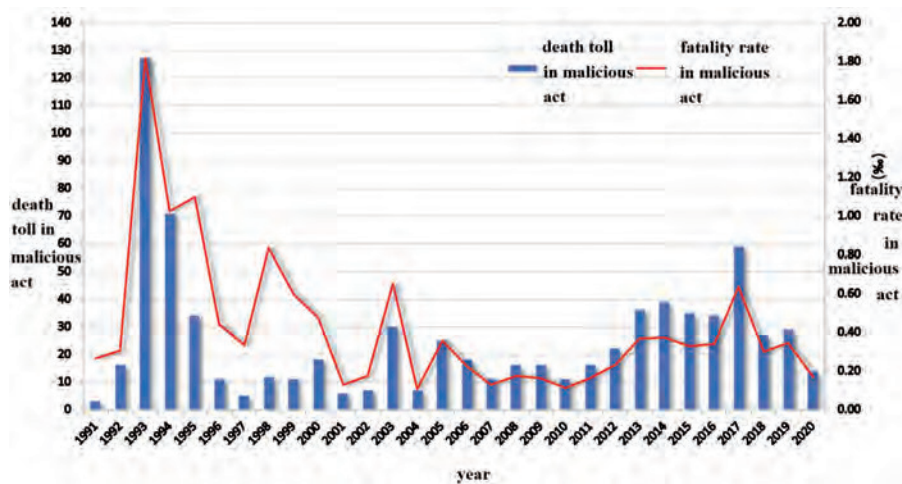


Figure 10: Annual peacekeepers' death toll and fatality rate in malicious act during the 30 years after the Cold War

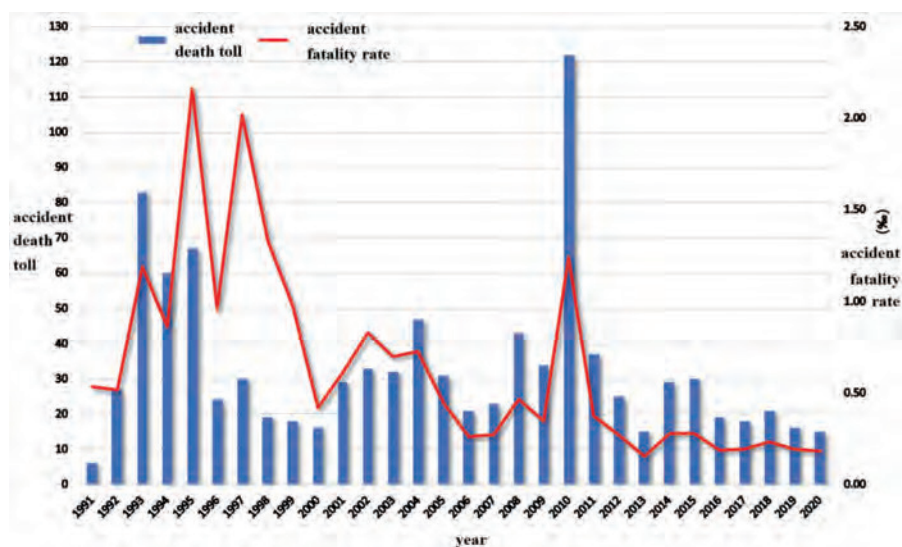


Figure 11: Annual peacekeepers' accident death toll and fatality rate in malicious act during the 30 years after the Cold War

further compare and analyze fatality rate in different countries.

The death toll caused by illness and accidents accounts for two thirds of peacekeepers' total death toll. By comparison, only a quarter of the deaths were caused by malicious act. UN PKOs are complicated and hazardous affairs conducted over wide and rugged/remote and barrier-ridden geographies and in unstable sites with varying security conditions^[8, 9]. Challenges of providing medical care have existed, principally, regarding medical logistics and patient movement, preventive medicine and psychiatry^[10].

In terms of fatality rate, the illness fatality rate has remained at a high level in the past decade. The finding shows that illness is the primary threat to the lives of peacekeepers. Especially in 2020, illness death toll and fatality rate increased sharply, reaching a record high. This may be related to "COVID-19"^[8]. Existing studies have shown

that in peacekeeping mission areas such as Africa and Central America, the threat of infectious illness such as malaria and Ebola is large, and the ability of illness control and the level of medical treatment are low.^[11, 12] Therefore, it is recommended that peacekeepers should improve their awareness of illness prevention and attach great importance to vaccination, personal hygiene and dietary hygiene^[13].

Peacekeeping medical forces should strengthen epidemic prevention ability in the formation, understand the medical geographic information in the mission areas in advance, update and improve the background data of infectious illness, pay attention to the allocation of isolation and protective equipment, and strengthen the health education of the support objects^[10]. National peacekeeping departments should strengthen the construction of epidemic emergency response system in the mission areas, and promote the pre-de-

ployment of infectious illness monitoring and early warning and the construction of medical evacuation system.

5. Conclusion

The study shows that illness and accidents(-car accidents, etc.) are the main causes of UN peacekeepers' death. During the past 30 years after the Cold War, the total death toll has been rising, but the total fatality rate has generally shown a downward trend. Illness and accident prevention are important ways to ensure the safety of peacekeepers.

Abbreviations

- BINUH the United Nations Integrated Office in Haiti
- BONUCA the United Nations Peace-building Support Office in Central African Republic
- MICAH International Civilian Support Mission in Haiti
- MINUJUSTH the United Nations Mission for Justice Support in Haiti
- MINUSMA the United Nations Multidimensional Integrated Stabilization Mission in Mali
- MINUSTAH the United Nations Stabilization Mission in Haiti
- MONUC the United Nations Organization Mission in the Democratic Republic of Congo
- MONUSCO The United Nations Stabilization Mission in the Democratic Republic of the Congo
- ONUC the United Nations Operation in the Congo
- OSE-Syria Office of the United Nations Special Envoy for Syria
- UN the United States
- UNAMID the United Nations Hybrid Mission in Darfur
- UNAMSIL the United Nations Hybrid Mission in Sierra Leone
- UNFICYP the United Nations Force in Cyprus
- UNIFIL the United Nations Interim Force in Lebanon
- UNIIMOG the United Nations Iran-Iraq Military Observer Group
- UNMA the United Nations Mine Action
- UNMAO
- UNMIL the United Nations Mission in Liberia
- UNMIS the United States Mission in the Sudan
- UNOAU the United Nations Office to the African Union
- UNOWAS the United Nations Office for West Africa and the Sahel

UNPROFOR the United Nations Protection Force
 UNPSG the United Nations Civilian Police Support Group
 UNSMIH the United Nations Support Mission in Haiti
 UNSMIS the United Nations Supervision Mission in Syria

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