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WAR INJURIES AND NON-COMMUNICABLE DISEASES IN PALESTINE: BURDEN, INCIDENCE, AND MANAGEMENT IN THE HEALTH SYSTEM

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War Injuries and Non-Communicable Diseases in Palestine: Burden, Incidence, and Management in the Health System

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Marwan Mosleh defended his dissertation "Non-communicable diseases and war injuries in Palestine: burden, incidence and management in the health system" in October 2020 at the Department of Health Sciences, Mid Sweden University. Marwan is a specialist in epidemiology and public health.

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Abstract

The epidemics of non-communicable diseases (NCDs) and war-related injuries are significant health concerns and are rapidly emerging as major causes of mortality and disability globally, particularly in low and middle-income countries (LMICs) such as Palestine. The thesis summarized in this brief uses a combination of methods to describe, characterize and analyze the burden, incidence and management of NCDs and war-related injuries in the Palestinian health system (PHS). The research concludes that the epidemic of NCDs, especially heart disease, and the high influx of war-associated injuries, impose a substantial and heavy burden on the PHS. The health system has many deficiencies and public hospitals do not work as they should, because of many challenges and the burden of diseases in the health system. Given this evidence, immediate actions and effective interventions should be initiated to tackle the burden of NCDs and war injuries in Palestine. A clear cost-effective health policy with a focus on preventive measures should be implemented. Further research using recent data on large scale populations are important to provide further insights on the magnitude and trend of NCDs and war injuries in this problematic context using research evidence to develop health policymaking is vital.

Introduction

Globally, chronic non-communicable diseases (NCDs) and injuries are accelerating regardless of the origin or social background. Developing countries have witnessed an epidemiological and demographical transition from communicable diseases to NCDs, facing substantial challenges and obstacles (Palestinian Ministry of Health, 2009). The continuing escalation of wars or conflicts in the world, especially in the Middle East, coincides with the growing trend of raids on health systems. Attacks to health facilities result in severe acute and long-term impacts to health systems. During this situation, health services and cases management, health workers, and humanitarian staff are no longer respected. War-related injuries have significantly increased with the escalation of conflict in the Middle East (Druce et al., 2019). In addition to war injuries, conflicts can increase the risk of acute NCD exacerbations and limit the capability of health systems to respond effectively (WHO, 2016).

The interaction between NCDs and war related injuries can result in life-threatening, long-term treatment and case management, especially in conflict affected settings (WHO, 2016). Besides the direct effect of conflict on the population's health due to death, injury and disability, there are also indirect impacts, such as psychological consequences that further complicate the context. Emergencies put a large pressure on health systems, which need to adapt to the urgent demands and, often have to disregard the management of chronic conditions (Aebischer et al, 2017). It is evident that most cases of exposure to war-related trauma were associated with at least one traumatic stress-related symptom, which could be further a risk factor for NCDs (Srinivasa Murthy & Lakshmin, 2006).

The prevention and control of these diseases are affected during complex emergencies, resulting in poor access to timely care and suboptimal outcomes of patients as well as increasing costs of managing complications (WHO, 2016).

Unsafe health care is a leading cause of mortality and disability globally. It will not be possible to strengthen health in low- and middle-income countries (LMICs) like Palestine without improving its quality. Yet, this topic receives considerably less attention than improving access to care. Quality is a topic that has been largely neglected in global health, but that is inconstant in the health system (National Academies of Sciences, Engineering, and Medicine, 2015).

The damage to the health system in a conflict-affected country is often huge. This has significant health consequence. It makes it hard or even impossible to manage conflict-related injuries, as well as other health conditions that are indirect consequences of conflicts or violence. Most individuals suffering from NCDs need chronic health care, which is difficult to receive and access in unstable and unsafe contexts with fragile health systems (Debarre, 2018).

The Palestinian setting has been plagued by intractable conflict for decades, with serious consequences for the Palestinian health system (PHS). The impact of ongoing conflict has made the PHS in a chronic state of disarray (Keelan, 2016). The major impacts of the recent conflict on NCDs management relate to access to health care facilities for medication, access to hospital for acute conditions care as well as access to referral care abroad (Salma et al., 2017). In addition to the burden of chronic conditions in the Palestinian territories (Mosleh et al., 2018), further pressure has been placed on the health system of Gaza since the start of the so-called "Great March of Return", as a result of the staggering incidence of injuries. It would be overwhelming for the health system to manage the high influx of injuries while struggling to cope with the so-call Great March of Return trauma causalities (UN, 2019).

The contributions of health research to health policy, management, and clinical care have been wide and diverse. Policymakers and planners, for instance, try to explore effective ways to benefit from the findings of health research. Health researchers attempt to fill the gap in information by assessing the health

conditions management and the impact of new health policies on patients' outcomes across different health settings and populations (National Research Council, 2005; WHO, 2012). The aim of this research was to provide a comprehensive account of the burden, incidence, patterns and management of NCDs and war-related injuries in Palestine. It seeks to provide much needed insights in order to help researchers to continue working on these vital topics globally, and especially in LMICs such as Palestine.

Background

Non-communicable diseases

Responding to the increasing burden of NCDs represents a challenge for health care systems globally due to the rising trend of chronic illness in many countries. Although the increasing burden of NCDs is partly driven by aging populations, it is crucial to illustrate that such diseases are not restricted to older parts of the population. Rising rates of young people and children are experiencing some kind of chronic health conditions (Barnett et al., 2012; van Cleave et al., 2010).

NCDs entail a substantial burden for the economy and huge costs for the gross domestic product. Societal costs emerge partly due to investments in direct health care, medicines, and medical interventions. In addition, indirect costs arise from, for instance, high absenteeism rates and decreased activity and productivity at workplaces as a result of chronic health conditions (Suhrcke et al., 2008).

Like other developing countries, the Palestinian territory is experiencing a demographic shift and an epidemiological transition from communicable diseases to NCDs. The transition in Palestine is characterized by rapid

urbanization and lifestyle changes (Palestinian Ministry of Health, 2009; Abu-Rmeileh et al., 2008; Moseleh et al., 2016; Abdeen, 2006; UNRWA, 2005; Abed, 2014). Currently, there is a growing and persistent burden of NCDs in the Palestinian territory. Heart disease, cerebrovascular accidents, diabetes, and cancer are the main conditions contributing to morbidity and mortality in the Gaza Strip. Palestine is facing a rapidly aging population and, consequently, the burden of NCDs is increasing (Ministry of Health, 2013; Husseini et al., 2009; Abed, 2007). It has been estimated that approximately two-thirds of elderly Palestinians suffer from NCDs (WAFA, 2019). Moreover, the diseases are also found to be the leading cause of death among the adult population in the Palestinian territory (Palestinian Medical Relief Society, 2003). The incidence of NCDs has been found to be over 57 % in the West Bank and over 40 % in the Gaza Strip (Ibid).

War-related injuries

Wars or armed conflicts are major contributors to injuries and deaths globally. They play a significant role in increasing the global burden of health problems across the world, particularly in developing countries (Murray et al., 2003).

In Middle Eastern countries such as Syria, Libya, Yemen, and Afghanistan, the health system has been heavily affected by wars and conflicts. Where health facilities and hospitals have been partially or completely closed or even demolished the provision of healthcare is frequently interrupted, and manpower and supplies are largely insufficient (Collier & Kienzler, 2018).

The Palestinian territory is known as suffering from protracted armed conflicts and wars. As in other developing countries, war-associated injury remains a major public health concern in the Palestinian territory, especially in the Gaza Strip (Palestinian Center for Human Rights, 2009).

The Gaza Strip has witnessed frequent wars or invasions, particularly in recent years. In the Gaza war of 2008, the ministry of health (MOH) and media outlets reported that 5,300 people had incurred physical injuries during Israel's attacks. The Palestinian Centre for Human Rights estimated that, 1,419 people died. Among the injured, 30 % were children and 16 % were women (Ibid). During the Gaza war of 2012, 2,173 physical injuries and 279 deaths were reported by the MOH (Ministry of Health, 2014; ACSWD, 2012).

More recently, in the Gaza war of 2014, 2,200 people died, the majority of whom were civilians, and more than 11,000 people were injured. Moreover, 50 primary health centers (PHCs) and 17 hospitals were targeted and damaged, and 28 PHCs and 6 hospitals had to close altogether. In addition, 83 health care providers were injured, two paramedics were killed, and 16 ambulances were attacked. In sum, this has caused a large gap in the ongoing delivery of healthcare as well as a great challenge to disease management in healthcare facilities (Ministry of Health, 2014, 2015; WHO, 2014a; Dyer, 2014).

Knowledge gap and rationale of the study

As in other LMICs, the topic of NCDs and war-related injuries deserves much more attention in conflicts-affected settings like the Palestinian territories. Unfortunately, these two significant health conditions have been largely neglected in health research.

Despite ongoing efforts and interventions by several actors and stakeholders in the region, NCDs are increasing rapidly, and prevention and control are still inadequate as the health system continues to collapse (Husseini et al., 2009; Ghosh et al., 2007). Accordingly, there is a growing demand for and interest in addressing NCDs in Palestine, particularly in the Gaza Strip. However, reliable nationwide data on NCDs remains scarce, especially with regard to their burden and magnitude among populations, the use of healthcare services by

patients, and the management of NCDs by healthcare providers. This is because data on NCDs are generated from routine hospital records and small-scale population reports. Similarly, there is insufficient data on the burden, incidence, patterns, and management of war-related injuries in the Gaza Strip.

This study is also motivated by evidence presented in previous studies, demonstrating the rapidly increasing incidence of NCDs and injuries in developing countries, including Palestine (Ministry of Health, 2013; Malterud et al., 2017). There are substantial gaps in the knowledge base due to the limited availability, accuracy, efficiency, and consistency of data on both NCDs and war injuries. Hence, more reliable data are needed to quantify the health effects of NCDs and war-related injuries.

To begin closing this gap in knowledge, the focus of the research summarized in this brief is on improving the understanding of the burden of NCDs and war-associated injuries, as well as to assess the existing healthcare facilities for NCD and war injuries management. Furthermore, the study will highlight the barriers in the existing healthcare system in relation to the optimal management of NCDs and war injuries.

Lessons learned from Palestine can be valuable for LMICs facing similar constraints and fragmentation in healthcare services regarding the management of NCDs and war-associated injuries. This study further suggests necessary improvements, modifications, and reforms in healthcare facilities by using existing resources for comparing with international data.

Most importantly, the outcome of this study could be useful in guiding the direction of further studies. Finally, the intention of the study was to contribute to enriching the national and international library of research concerned with NCDs and war injuries.

Aims

The overall objective of the thesis summarized in this brief was to critically assess the existing healthcare facilities for cases management in the PHS. Ultimately, the intention of the research was to analyze, characterize and describe the burden, incidence and management of NCDs and war-related injuries in Palestine.

Specific aims:

1. To quantify the burden of reported NCDs in the Palestinian health system (paper I).
2. To describe and characterize the incidence and patterns of war– associated injuries in the Palestinian health system (paper II).
3. To explore the perspectives of healthcare providers regarding NCDs and war-related injuries management in the Palestinian health system (paper III).
4. To assess the Palestinian patients' and policymakers' perspectives on healthcare problems, barriers, and challenges for quality of care and management of NCDs and war injuries (paper IV).

Methods and subjects

Study designs (study I–IV)

This dissertation analyzes a significant part of the Palestinian health system using a combination of approaches, including both quantitative and qualitative methods. The quantitative designs included registry secondary data used in study I and II. In study III and IV, a qualitative approach was used where data collection using focus group discussions (FGDs) interviews (study III) and

individual in-depth interviews (study IV) were used (see Table 1). The aim of the quantitative study was to quantify the burden of NCDs in the PHS (study I), and to characterize the incidence and patterns of war injuries in the Gaza Strip (study II). The aim of the qualitative study was to explore the perceptions of healthcare providers on NCDs and war injuries management (study III), and to explore the patients' and policymakers' perspectives on barriers to the managing and delivery of care to war-injured survivors or patients with NCDs in the PHS (study IV).

Table1: Summary of research project sub-studies

Papers	**Design of study**	**Study population**	**Data collection method**	**Methods of analysis**	**Outcome measures**
Paper I	Quantitative (registry data)	Data on patients with NCD	PDHS 2010, annual reports and materials	GBD methodology, DALYs	Burden of NCDs
Paper II	Quantitative (registry data)	War injured survivors	Registry injury data of Gaza war 2014	Descriptive statistics and Chi Square tests	Incidence and patterns of war injuries
Paper III	Qualitative	Physicians and head nurses	FGDs	Manifest content analysis	Perspective of management
Paper IV	Qualitative	Patients and policy-makers	In-depth interviews	Thematic analysis	Perceived barriers

Study populations

For study I, secondary data were obtained from two sources to quantify the burden of NCDs in Palestine. The first source used morbidity data of NCDs from the demographic and health survey of 2010, which was conducted in Palestine including Gaza Strip and West Bank. The mortality data were extracted from annual mortality reports and registries of MOH for the same year. The total number of surveyed households was 15,355 (5,328 in the Gaza Strip and 10,027 in the West Bank) (Tayie, 2005). While, for study II, a representative sample of 420 records out of 11,228 wars injured survivors of the 2014 Gaza war was randomly selected. The selection of war injured study records was proportional to the distribution of the population in different Gaza locations. Any war-associated injuries unrelated to the 2014 war were also excluded.

For study III, four FGDs including a total of 30 key informants (14 physicians/surgeons and 16 head nurses) were carried out in the three main hospitals in the Gaza Strip, including Gaza European hospital, Nasser hospital, and Al-Shifa hospital. The groups were purposely selected in order to get adequate information from healthcare providers. While, for study IV, a total of 35 in-depth interviews were conducted with 18 key political informants, 10 patients with NCDs and 7 war-injured survivors. The interviewees were purposely selected from different health facilities and specialties.

Data analysis

The world health organization (WHO) templates were used to estimate disability-adjusted life years (DALYs), including years of life lost and years lived with disability. These are Microsoft Excel spreadsheet templates designed by WHO and widely used as a method for quantifying the global burden of disease

(GBD) on a national or sub-national level (Ministry of Health, 2012; 2014). For study II, data were entered, processed and analyzed using IBM SPSS software version 23.

For study III, a debriefing session was conducted soon after each FGD. All collected data were then transcribed verbatim into Microsoft word and analyzed using qualitative manifest content analysis. For study IV, the explored data were transcribed verbatim into Microsoft world and analyzed using qualitative thematic-driven analysis (UNRWA, 2014), to explore themes and patterns of qualitative data, the process for which was followed step-by-step.

Ethical aspects

The research project was approved by the Palestinian Health Research Committee License No. (PHRC/HC/61/15) and (PHRC/HC/234/17). The research was also approved, permitted, and facilitated by the MOH and concerned authorities. The data handling approval was also obtained from the PCBS for the use of data for study I, License No. (PLN2015-7-11).

Summary of results

Study I. Burden of NCDs in the Palestinian health system

The study demonstrated that the total DALYs due to reported NCDs in Palestine were estimated as 60 per 1,000 DALYs in the West Bank, while 57 per 1,000 in the Gaza Strip, with each DALY corresponds to one lost year of optimal healthy life.

In summary, heart diseases were found to be the top leading causes of NCDs overburden in terms of DALYs among the Palestinian population, in line with previous research of LMICs (Dele, 2007).

Table 2: Burden of NCDs in the Gaza Strip and the West Bank, 2010

Diseases categorize by YLL,[1] YLD[2] and DALYs								
	Gaza Strip				West Bank			
Cause	**Rank**	**YLL**	**YLD**	**Total DALYs/1000**	**Rank**	**YLL**	**YLD**	**Total DALYs/1000**
Ischemic heart disease (IHD)	2	9.80	8.80	18.60	1	9.10	12.0	21.10
Cancer (Lung and Breast)	3	6.40	1.30	7.70	4	4.60	1.72	6.32
Respiratory disease	4	3.10	4.10	7.20	3	3.50	3.80	7.30
Chronic Kidney Disease	5	1.50	0.70	2.20	6	1.40	0.74	2.14
Hypertensive heart disease	1	1.30	18.1	19.40	2	0.95	19.45	20.40
DM (type I and II)	6	1.10	0.80	1.90	5	1.80	0.93	2.73
Total (DALY)			**57.0 per 1,000**				**60.0 per 1,000**	

[1] Years of life lost due to premature mortality.

[2] Years of healthy life lost due to disability.

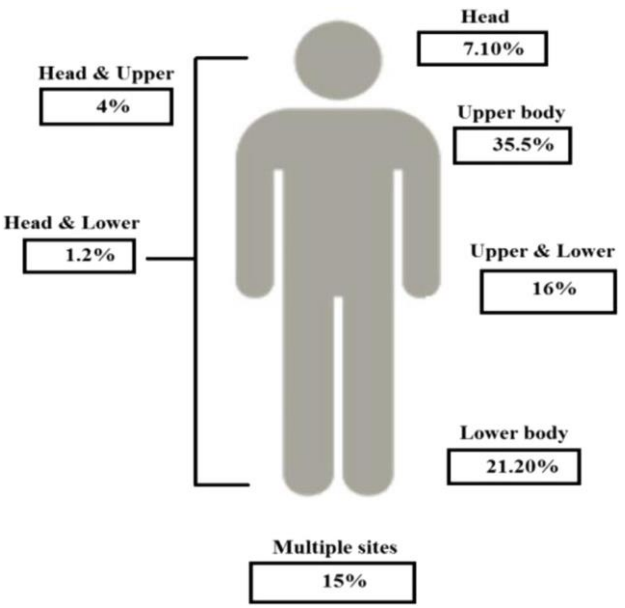
Study II. Burden of war injuries in the Palestinian health system

The study showed that the average incidence of war injuries was 6.4 per 1,000 reported across all regions. The highest proportion of injuries in the Gaza Strip was observed in Gaza city (9.0/1,000), followed by North Gaza. The Rafah province had reported the lowest incidence of injuries (4.7/1,000).

The study indicated that the incidence of injuries during the 2014 Gaza war was three times greater among males than females (ratio 3.1:1), a ratio consistent with the figures reported by the MOH during the previous wars in the Gaza Strip (Ministry of Health, 2012; ACSWD, 2010; Shaheen, 2009), and also in line with figures of injuries reported during the Al Aqsa-uprising (called Intifada) between 2000 and 2006 (Hammouda, 2009).

The largest proportion of war injuries were located in the upper body, a figure that rises notably if head injuries are also included. The vast majority of war-related injuries were due to blasts or explosions. War-related body shrapnel, burns, and wounds represented the largest proportion of injuries, followed by multiple injuries, fractures, internal organ injury and bleeding, abrasions/lacerations and contusions, amputations, vision/hearing problems or both, and respiratory disorder. The highest proportion of war-related injuries was categorized as mild, and the remaining ranged from moderate to severe. Almost one-fourth of war injured survivors had partial or permanent disability.

Figure 1: Anatomical site of war-related injury by type. Data from 2014 Gaza war



Almost half of war injured survivors underwent debridement and wound management, whereas 19.3 % had surgical intervention of the upper body including: head, face, neck, chest, spine, pelvis, or extremities; 16.4 % underwent fracture management; 5.0 % had undergone urgent exploratory laparotomy; 3.6 % received multiple interventions; 3.3 % underwent skin grafting and burn management; and 2.9 % had respiratory management due to poisonous gas inhalation during wartime.

The study illustrated that the severity of injury and disability differed significantly between males and females. There was also a significant difference in the severity of injury and disability among war injured survivors according to their place of residence across Gaza provinces.

Study III. Perceptions of non-communicable disease and war injury management in the Palestinian health system: a qualitative study of healthcare providers' perspectives.

In the qualitative manifest content analysis, four themes emerged from the voices of physicians/surgeons and head nurses working in public hospitals in the Gaza Strip.

Theme 1: Functioning of healthcare system

Although informants expressed some positive aspects and practices in the healthcare system, such as continuity of care with limited resources and interruption of disposables, they conveyed that fundamental changes and significant reforms are required to improve the quality of care and to make care work better than it currently does. All informants believed that the effectiveness and efficiency of NCDs and war injuries management are insufficient, and a more effective plan is important and needed. These results correspond with figures related to other developing countries, such as a study of Bangladesh (Islam et al., 2015). The findings of the present study were also consistent with studies in some Western countries, such as Sweden, Germany, Italy, United Kingdom, Australia, Canada, Ireland, New Zealand and the US, in which the results showed that fundamental modifications are required to improve healthcare (Darker et al., 2015; Darker et al., 2011).

Theme 2: System-related challenges

Most healthcare providers stated that there were troubles associated with the management of patients, particularly during emergency situations, and that the management of cases during emergencies is mostly done according to priority.

Informants confirmed that they did not use any updated guidelines, but instead relied on their own perceptions in the treatment of cases. They stated that the common reasons were the unavailability of such guidelines and the lack of a clear universal policy in the system. They added that there is fragmentation/division of the system between the main Palestinian regions (Gaza strip and West Bank). The informants also said that the use of health information systems is insufficient in practice due to many challenges and technical concerns. The informants also stressed that there were concerns regarding shared care among different healthcare providers. Both physicians/surgeons and nurses expressed that the task-sharing was suboptimal and unsatisfactory and seemed to be neglected.

Theme 3: Patient-related challenges

Most informants mentioned the unsatisfactory communication with war-injured survivors. On the other hand, the study disclosed the discrepancies between physicians and nurses regarding communication with chronically ill. Nurses said that there was good communication with chronically ill patients; however, physicians expressed poor communication with chronically ill patients. The study showed that there was a consensus between physicians and nurses that their patients do not get a written instruction about self-management. Instead, some instructions are given verbally. The study also revealed that most healthcare workers were dissatisfied with patient compliance with treatment plans and medical instructions.

Finally, the informants suggested necessary initiatives and approaches for the improvement of healthcare, such as an updated emergency plan, sufficient resources, training opportunities in micro-specialties and the development and adoption of updated clinical treatment guidelines.

Study IV. Barriers to management and delivery of care to war-injured survivors or patients with non-communicable disease: a qualitative study of Palestinian patients' and policymakers' perspectives.

In the qualitative thematic analysis, five themes were explored for policymakers and four themes for patients regarding barriers for NCDs or war injuries management.

Perspective of barriers by patients

Organization barriers/health system barriers: The patients expressed problems in regard to administration, disinterested routine and bureaucratic work. Additionally, the high patient volume was also perceived as a common barrier to accessing good care. Furthermore, for most patients, difficulties in getting an appointment and delays in seeing physicians were common hospital barriers, causing patients to wait for long periods of time to receive their care and evaluation. Another important concern was troubles in the referral system since referrals between public hospitals and other local and distant health facilities were common. However, there were delays and restrictions in receiving permission from Israeli authorities and a lack of coordination with the referral facilities.

Availability, financial and socioeconomic barriers: The study found that most patients experienced several barriers in accessing quality care: lack of key resources such as medical supplies, and expertise of teams in micro-specialties. Patients were dissatisfied with the current quality of care in public hospitals, stressing that the lack of resources is an important impediment to quality care. Most patients complained that public hospitals frequently and repeatedly run out of medications for their diseases. For many people, it was very hard to access private care since the cost is unaffordable to people with low economic status.

Physical and psychological barriers: The study found that all patients felt that their self-care was largely affected by their illness. They expressed that their physical status and the severity of their condition were major barriers to self-care and help-seeking, which resulted in poor health outcomes. Most patients experienced poor psychological conditions and hopelessness due to the seriousness of their conditions, prolonged treatments, unaffordable treatment costs, and poverty.

Communication barriers: The study also revealed problems associated with the communication between patients and care providers, causing poor coordination of patients' care as well as unproductive patient-provider interactions. Additionally, most patients expressed that they did not get adequate details about their conditions due to a lack of interaction, poor responsiveness, and misunderstandings due to medical jargon.

Perspective of barriers by policymakers

Organizational/structural barriers: The policymakers pointed to a number of underlying concerns of related to organizational/structural barriers, resulting in unsatisfactory health outcomes. For instance, inadequate hospital infrastructure, the absence of a clear universal policy, and chronic

fragmentation of the system were perceived as significant barriers to quality care. Policymakers highlighted problems that populations face in accessing healthcare and managing their diseases, including: higher patient load and volume, long waiting times, and overcrowding of attendants and visitors in hospital emergency rooms and corridors. They added that the absence of an effective reward and punishment regime was perceived as an obstacle in improving healthcare services.

Availability-related barriers: The most significant barriers identified by informants within this category was the lack of national unified protocols or updated guidelines for chronic disease or injury management This causes the practice to depend on the health provider's perception and is identified as a factor that may result in suboptimal quality of care. All informants stressed that inadequate resources was an important barrier in the health system, affecting the quality of care and disease management. This includes a shortage of medicines and interrupted drug supply, the lack of experts in sub- and micro-specialties, the lack of training opportunities, and a shortage of rehabilitation services for patients with NCDs or injuries. Another significant concern was the poor referral system, which is considered to be a major barrier to quality care and the management of NCDs and injuries.

Personal-related barriers: The policymakers believed that there are many barriers affecting the provision and management of care, such as low personal motivation, insufficient experience, lack of interest, and poor supervision of the use of guidelines.

Financial and political-related barriers: The informants expressed also perceived the lack of health insurance coverage as a key barrier to effective care in the health system. Another important problem expressed by policymakers was the lack of funding from the authority for the provision of basic resources, which affects the delivery of quality care in line with the expectations and aspirations of people. Numerous other political barriers to the delivery of

quality care were brought up by the policymakers, such as the lack of political commitment and the political division between the two Palestinian entities, the Gaza Strip and the West Bank.

Communication-related barriers: The informants also highlighted many important barriers affecting the communication in health facilities: poor communication between healthcare providers, lack of skills, poor coordination, poor interaction between staff and patients, and suboptimal task-sharing between MOH and relevant stakeholders.

The barriers constitute great challenges affecting the system and quality of care, resulting in unsatisfactory outcomes or poor care. These identified barriers were in line with the WHO's findings concerning the Palestinian health system and care across the Gaza Strip over several years (WHO, 2014b, 2014c, 2019; Abu-El-Noor, 2011). These findings pertaining to Palestine are also consistent with a study of Libya, which identified several problems and challenges encountered by the Libyan healthcare system and management during emergencies (Daw, 2017).

Implications of the study findings for the improvement of care in the health system

Healthcare and clinical practice

The studies summarized in this brief have identified critical gaps in healthcare provision and management. Knowledge regarding these gaps is crucial for the improvement of healthcare policy nationally and internationally and for the reorientation and enhanced provision of healthcare and medical services for patients with NCDs or war-related injuries. The research suggests some particular areas that need to be improved and integrated in the system in order

to optimize the quality of care. The most important factors include: the adoption of NCDs-related protocols/guidelines in practice such as piloting WHO, encouraging policy commitment with care providers, and assigning a responsible technical party to ensure effective universal implementation; the facilitation of monitoring, evaluation, and follow-up, and the prioritization of research on NCDs and war–related injuries. Furthermore, the study should assist in the improvement of triage services during emergencies, the preparedness of the work site, and the improvement of post-operative care. The study recommends that the WHO should lead the process of implementing the national strategy for NCDs and war injuries in clinical practice. The health facilities need adequate equipment, lab kits, screening tools (scales and assessment devices) and the improvement of community awareness.

Additionally, there must be an assessment of training needs and ongoing training of professionals, including physicians, surgeons, nurses, and pharmacist on the use of unified protocols. Moreover, the importance of follow-up and monitoring of protocols in practice needs to be emphasized during field implementation.

Upcoming research

Although, the research project provided vital information and evidence, further national and international studies using more recent data are needed to address and follow-up the trends in the burden of NCDs and war injuries in Palestine and other countries. Additionally, more health research that addresses healthcare providers' insights, interests, and initiatives to improve and advance practice performance would be extremely valuable. Further research on a larger scale on NCD patients and injured victims' knowledge, attitudes, beliefs, and practices towards NCDs and injuries management within the primary and secondary healthcare sectors is also necessary.

Most importantly, suggested research on community health and community initiatives regarding NCDs and injuries would be a significant contribution towards the improvement of disease management, whilst considering socio-demographic factors in all Palestinian regions.

Decision makers

Policy-level interventions play a significant role in the prevention and control of NCDs as well as in improving injury care. A new cost-effective health system strategy should be adopted, considering the chronic shortage of resources and the ongoing blockade. Most importantly, the healthcare strategy should be applicable to ensure the continuity of healthcare without interruption, and to include immediate, appropriate, and effective interventions, which should be incorporated into clinical practice. Such strategies are necessary in order to minimize the impact of the burden of NCDs and war injuries on the provision and quality of healthcare in the Palestinian health facilities.

As NCDs and war injuries addressed in this research have been shown to constitute a substantial burden, they should be continuously placed among the health priorities of national and international health policy agendas.

The study specifies that the policymakers have the responsibility for organizing regular meetings among different stakeholders in order to monitor implementation and up-coming challenges. An important aspect is to improve the referral system and the task-sharing between different health sectors and relevant stakeholders. The policymakers must support the strategy for the improvement of storage and the use of medications as well as the training of medical teams and community activists. Policymakers must also enhance the governance of public-private health partnerships, especially in times of crisis.

Conclusions

This research contributes significantly to the improved understanding of the burden, incidence, patterns, and management of both NCDs and war injuries among the population in Palestine, where epidemiological and clinical assessments remain very scarce and largely neglected.

The findings of this research has showed that the number of disability-adjusted life years due to NCDs is high in the Palestinian health system, and heart disease was found to be the major contributor to the overburden of NCDs. War-associated injuries continue to constitute a major concern in public health and clinical medicine, since the incidence of war injuries during the recent war was three times higher than in previous wars, and they also constitute a heavy burden to the Palestinian health system.

The research has revealed that despite some positive aspects in the current health system, fundamental changes and comprehensive reforms in are needed to improve healthcare services and disease management.

The study indicates that the quality of care for NCDs or war injuries management was perceived to be suboptimal and unsatisfactory. The hospitals perform sub-optimally because of the overburden of disease and the challenges of contextual and system barriers. One of the important barriers was the non-use of clinical guidelines, which are considered to be key tools for improving the quality of care for patients with NCDs and for managing the care of war injured survivors in the Palestinian health system.

There is also sub-optimal collaboration in the Gaza Strip between primary and secondary healthcare, and between public and private health sectors and stakeholders in relation to shared care and task-sharing. From the experience gained in collecting data, it is apparent that a better, more comprehensive health surveillance system using international classification of diseases (ICD) codes

would make future assessments easier and timelier. The study supports the adoption of all CCM components for disease management in the Palestinian health system.

To summarize, there is an immature health system for managing NCDs and war injuries in Palestine. Therefore, a clear and unique national health policy plan, based on a strategy for health promotion is needed. The health promotion and disease prevention strategy in the Palestinian health system requires active engagement and support from various stakeholders and policymakers.

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Non-communicable diseases (NCDs) and war-related injuries constitute major health concerns globally, particularly in low- and middle-income countries. This Development Dissertation Brief describes and analyzes the burden, incidence, and management of these health problems in the Palestinian health system, and points to necessary actions and interventions to improve care.

Icke-smittsamma sjukdomar och krigsskador leder till stor ohälsa globalt, särskilt i låg- och medelinkomstländer. Denna Development Dissertation Brief beskriver och analyserar belastningen, frekvensen och hanteringen av dessa hälsoproblem i det palestinska sjukvårdssystemet. Författaren drar också slutsatser om nödvändiga åtgärder och insatser för att förbättra vården.

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