

MPH/ Epidemiology and Biostatistics

Deanship of Graduate Studies

**Unintentional injuries among Children in Gaza Strip:
An Epidemiological Assessment**

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Abstract

Childhood unintentional injuries are serious public health problem. It is a leading cause of disability, years of life lost, and a major contributor to health care costs. The aim of this study was to identify the possible and common risk factors and socioeconomical conditions contributed in the spread of injuries among Palestinian child population in Gaza Strip, where establishment of the incidence and epidemiological characteristics of the injuries can provide information about susceptible preventable actions.

A community based cross sectional study was conducted among children aged 12 years and below who lived in all Gaza Strip districts. A proportional stratification, multistage and clustering sampling was used, in order to ensure that the sample was geographically representative, and a random sample was selected. The eligible study population was 408 children accordingly 408 households selected. The response rate was 100 %. In this study we have information about 2412 children. This included information about each injured child in the family, and possible risk factors for injuries.

Among the 2412 studied children, 212 injury episodes were reported by the family with annualized rate of unintentional injury was 9.9 per 100 children. The study revealed an increased risk associated with districts and urbanization level of the living area. Home injuries are the most prevalent injuries and falls was the predominant injury mechanisms of injury, followed by road traffic injuries. Children, particularly school age children-aged children, are at greatest risk, male sex, parents' educational level, parents' working status, father occupation, and source of family income are associated with the injury risk. The most important housing condition contributions to the risk of injury are the numbers of rooms, type, and altitude of the house. Most of injury episodes didn't require any medical cares and 47.7% of injured children have no complications as result of injury except the death of one child.

This study contribute to describe and draw a primary epidemiological picture about unintentional injuries as public health problem among Gaza Strip children and lead to the developmental of preventative strategies delivering a cost effectiveness national intervention that make it possible to reduce unintentional injuries. More research is needed to study this problem in a more specific focused way.

ملخص الدراسة

تعتبر إصابات الأطفال العرضية (التي تشمل الإصابات الناجمة عن سلسلة من الأحداث العارضة مثل حوادث الطرق، الوقوع، الحروق، التسمم، الغرق، و آليات أخرى) من أهم العوامل التي تؤدي إلى حدوث الوفيات و الإعاقات بين الأطفال وما لذلك من أعباء صحية و اجتماعية. هدفت هذه الدراسة لرسم صورة أولية حول انتشار و أهم عوامل الخطر لهذه المشكلة و التي بدورها تساهم في بناء السياسات و البرامج الوقائية التي يمكن أن تحد من انتشارها.

الأهداف الخاصة:

1. تحديد معدل انتشار الإصابات العرضية الشائعة بين أطفال قطاع غزة.
2. معرفة أهم عوامل الخطر المصاحبة و الداعمة لحدوث الإصابات العرضية بين الأطفال.
3. فحص العلاقة بين الظروف الاجتماعية و الاقتصادية و حدوث الإصابات العرضية للأطفال.
4. تقييم العلاقة بين شروط المسكن و حدوث الإصابات العرضية للأطفال.
5. تقييم العلاقة بين ممارسات الأم و حدوث الإصابات العرضية للأطفال.

منهجية الدراسة:

هذه الدراسة دراسية وصفية تحليلية مقطعية على الأطفال الذين أعمارهم 12 سنة فأقل .

عينة الدراسة:-

تم اختيار طريقة أخذ العينة بحيث تكون ممثلة لجميع فئات و شرائح المجتمع الفلسطيني و التوزيع الديموغرافي في قطاع غزة لذلك تم اعتماد الطريقة الطبقيّة النسبية المتكررة و العنقودية لاختيار أفراد الدراسة. تم تحديد حجم عينة الدراسة لتكون 408 طفلاً و تبعا تم اختيار 408 منزلا عشوائيا لدراستها فكانت نتيجة ذلك شمول 2412 طفلا كإجمالي لعدد أطفال الأسر المشمولة في الدراسة.

كيفية جمع المعلومات:

تم جمع المعلومات بطريقة غير مباشرة حيث صممت الباحثة استبانة خاصة لجمع المعلومات الاجتماعية و الاقتصادية و ظروف المسكن و السلوك اليومي. و قد تم فحص صدق و ثبات الأداة البحثية من الناحية العلمية و العملية من قبل محكمين بالإضافة لتطبيق الاستبانة على عينة استطلاعية قبل البدء في البحث و قد تم تعديل أداة البحث لذا استثنيت العينة القبلية.

النتائج:

- معدل انتشار الإصابات العرضية بين الأطفال الذين أعمارهم 12 عاما فأقل هو 9.9 طفلا لكل مائة طفل بمعنى أن من بين 10 أطفال هناك طفلا مصاب.
- أظهرت هذه الدراسة أن هناك اختلاف ذو دلالة إحصائية في معدلات انتشار الإصابات بين الأطفال باختلاف المحافظة و الشريحة الاجتماعية التي يقطن فيها الطفل. حيث سجل الأطفال الذين يعيشون في محافظتي الوسطى و رفح أعلى نسب للإصابات العرضية بين الأطفال (52.5%) و (51.0%) بالترتيب. بينما سجلت أقل نسبة للإصابات بين أطفال محافظة غزة. بالنسبة للاختلافات في نسب الإصابات من خلال اختلاف الشريحة الديموغرافية فقد سجل الأطفال الذين يعيشون في مخيمات اللاجئين أعلى نسبة (52.0%) ثم أولئك الذين يعيشون في مناطق ريفية بنسبة (42.3%) بينما سجلت أقل نسبة بين أولئك الذين يعيشون في مناطق الحضر (34.1%).
- أظهرت هذه الدراسة أن معظم الإصابات المسجلة كانت تلك الإصابات الناتجة عن الوقوع فقد كانت تمثل ما يزيد عن نصف الإصابات المسجلة يليها إصابات حوادث الطرق (18.4%) ثم إصابات الحروق و النار و التي تمثل (14.2%) ثم إصابات التسمم (9.4%) بينما سجلت إصابات الغرق نسبة ضئيلة جدا (0.2%) في حين أن باقي آليات الإصابات سجلت 7.1% من إجمالي الإصابات المسجلة أثناء الدراسة.
- أظهرت الدراسة أن هناك اختلافات في معدلات الإصابات العرضية بين الأطفال حسب عمر و جنس و ترتيب الطفل المصاب بين أطفال العائلة. فقد وجد إصابات الذكور تمثل ضعفي الإصابات المسجلة بين الإناث، أما فيما يخص عمر الطفل المصاب بالسنوات فقد وجد أن معدلات الإصابات لا تتبع مثال ثابت في

حين أنه عند إعادة تصنيف سنوات العمر إلى مجموعات عمرية تعكس السلوك و النشاطات للطفل فقد تبين

أن الأطفال في سن المدرسة (5-12) عاما هم الأكثر عرضة للإصابات. بينما كانت إصابات الطرق و

الوقوع أكثر شيوعا بين الصبيان كانت إصابات الحروق و التسمم و الغرق أكثر شيوعا بين الفتيات.

• أم فيما يخص مكان حدوث الإصابات فقد كانت إصابات المنازل هي الأكثر شيوعا و قد كانت أكثر انتشارا

بين الأطفال الأصغر سنا بينما تنتشر إصابات الأماكن العامة بين الأكبر سنا. غالبية الإصابات المسجلة

كانت لا تحتاج لتلقي عناية طبية مباشرة.

• أثبتت الدراسة أن هناك علاقات ذات دلالة إحصائية بين حدوث الإصابات و بعض المتغيرات الاجتماعية و

الاقتصادية، منها درجة التعليم للوالدين و عمل الوالدين ، نوع عمل الأب ، مصدر دخل الأسرة. بينما

سجلت بعض شروط المسكن علاقة ارتباط ذات دلالة إحصائية مع حدوث إصابات الأطفال، و هذه الشروط

هي عدد غرف المنزل و نوعه و ارتفاعه.

التوصيات:

من أهم التوصيات التي خرجت بها الدراسة:

• إنشاء لجنة وطنية تكون مسؤولة عن تحديد المحددات الاقتصادية و الاجتماعية و السلوكية لهذه المشكلة. و

تعمل على دعم المشاركة المجتمعية و السياسات و القوانين الداعمة و التنسيق مع الجهات المعنية.

• بناء نظام تقصي محلي لمتابعة هذه المشكلة و مشاركتها في تسبب الوفاة و المراضة للأطفال و التعرف

على مدى تعرضهم لعوامل الاختطار التي تدعم نفشى هذا المشكلة.

• وضع بعض المقاييس و التشريعات الاجبارية و التي تدعم و تضمن حماية الصحة العامة للأفراد.

• تعزيز التثقيف الصحي المقدم لصغار السن حول هذه المشكلة و تصميم برامج توعية مرتكزة على

مشاركة المجتمع للوقاية من هذه المشكلة.

توصيات بحثية:

تقترح الدراسة إرجاء دراسات أخرى من أجل توثيق نتائج هذه الدراسة تعالج المتغيرات المؤثرة بشكل أكثر

تركيزا و باستخدام معلومات أكثر شمولا.

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Chapter 1

Introduction

Injuries, intentional and unintentional, are a large and neglected health problem on the overall world (WHO). Injuries are a significant leading cause of death and disability in children in many developing countries (London, Mock, Abantang, Quansah, Boateng, 2002). Over recent years epidemiological studies have established injuries as a major public health problem for young people (Sherrard, Tonge, & Ozanne-Smith, 2002). The risk of injury is so great that most persons sustain a significant injury at sometime during their lives. Injuries one of the major leading causes of premature death. Injuries prevails mostly among very young and the 65-and-over age groups.

Globally the World Health Organization (WHO) estimate that three-and-a- half million deaths due to accidents with more than two million occurring in developing countries. Accidents are responsible for 7% of the world mortality (MOH, 2001). In Palestine 8,920 unintentional injuries reported in 2000, out of which 2,918 are reported in Gaza Strip with proportion 39.5 %(MOH, 2001).

CDC defined accidents as an event or incidents resulting from an interaction among a host (people), agent (things), and environment (places). So accidents is a preventable problem with consideration of developing safe environment within the human beings live. Many countries succeeded to declare and implement their intervention policies resulted in a sharp decrease in the prevalence of injuries. Despite this success in prevention achieved in many countries during the last years, the World Health Organization (WHO) mention on the report of the year 1999 that is injuries are a neglected area of public health policy and more attention therefore needs to focus on

dealing with the growing problem of injuries through more comprehensive prevention, improved emergency and treatment services, and better rehabilitation (WHO, 1999). Addressing the challenge of injuries prevention is a shared responsibility that requires the active participation and leadership of policy makers, health care providers, professional, educators, community leaders, and the Palestinian public itself.

Research problem:

In Palestine deaths due to accidents represent 5.1 % from the total deaths with rate 15 per 100,000 deaths. Injuries are the first leading cause of death for age group 1 through 4 years and count 23.3% of total deaths with age specific mortality rate 15.9 per 100,000. It is the first leading cause of death for age group 5-19 years old 31.1% of total deaths with age specific mortality rate 11.3 per 100,000. Mortality rate due to accidents increase progressively from 9.1 /100.000 in 1995 to 15/100,000 in 2000 and later to 38.9 /100.000 in 2002 (MOH, 2003, 2001). That is clearly indicated that there is a considerable public health problem. Injuries have been largely unstudied in our country. Unfortunately for each injury death there are several thousands of people lived with permanent disability. Accidents and related injuries form a great impact on both the families and the health services.

Justification of the problem:

Injuries occur at all socioeconomic levels. No home or individual immune against unintentional injuries. All age groups and both sexes are victims of unintentional injuries, and most injuries are preventable, they must be considered as a priority health problem. Public health researchers are concerned with the total environment as the basic cause of human safety and well being. National mortality and morbidity data

demonstrate the relative to other disease injuries represent a significant community health problem. There is no any well- formed study conducted in Gaza Strip to assess the prevalence or incidence of child accidents risk factors contributed with this condition. This study carried out to identify the possible and common risk factors and socioeconomical conditions contributed in the spread of injuries among Palestinian child population in Gaza Strip. Establishment of the incidence and epidemiological characteristics of the injuries can provide improvement information about susceptible preventable actions.

Purpose

The purpose of this study is to describe the magnitude of unintentional injuries among child population in Gaza Strip and to identify the common risk factors associated with this condition.

Objectives:

1. To determine the prevalence of the most common unintentional injuries among children in Gaza Strip.
2. To recognize risk factors associated with the identified unintentional injuries.
3. To examine the association between socioeconomic conditions and common injuries.
4. To examine home conditions associated with the occurrence of the injury.
5. To examine the family practices associated with the occurrence of the injury.

Definition of terms

Accidents: A sequence of events that result in unintentional injury, death, or property damage.

Unintentional Injuries: Physical, Emotional, Social damage or suffering that is the result of motor vehicle crashes, falls, poisoning, drowning, fires, and other mechanisms.

Poverty line: Palestinian Central Bureau of Statistics (PCBS) estimated the poverty line for the year 2001 to be 1,642 New Israeli Sheqalim (NIS) for a household composed of two adults and four children (PCBS, 2001)

Low educational level: This level includes any person who did not enter school or has not completed more than 6 years of education.

Medium educational level: This level includes any person who completed 7 – 12 years of education.

High educational level: This level includes any person who completed more than 12 years education.

Parent occupation group: the researcher classified occupation groups applied (PCBS) definition of Labor force groups. They are Professionals, Skilled worker, Unskilled worker, Merchant, Policeman, Unemployed (PCBS, 1999).

Chapter 6

Conclusion and recommendations

Conclusion:

Childhood injuries were a neglected health problem in Gaza Strip. While national level vital statistics routinely include data on fatal injuries, surveillance of non-fatal injuries is not performed due to the need to integrate data from many different sources, which need greatest potentials within the current political situation. This study has attempted to describe and draw a primary epidemiological picture about this problem among Gaza Strip children. So the Incidence of unintentional injuries and the risk factors associated with this problem were studied in Gaza Strip. A proportional stratification, multistage and clustering sampling was prepared, in order to ensure that the sample was geographically representative, and a random sample was selected. The eligible study population was 408 children accordingly 408 households selected. The response rate was 100 %. Accordingly, we have information about 2412 children. This included information about each injured child in the family, and socioeconomic status of the family. The present study reveals the following points:

- The overall incidence rate of unintentional injury was 9.9 episodes per 100 children aged 12 years and below, or every ten children there is one injured.
- The study results showed differences between the population in the Gaza Strip provinces. The Midzone and Rafah governerate are exposed to the highest percentage 52.5 % and 51.0 % of injured children respectively, while Gaza area is the lowest 31.8

percentage of injured children. Other governorate reported a percentage around the overall percentage 40%. There were a significant differences of the injury rates by the locality where the highest injury rates (52.0%) were among children live in camps followed children resident in rural and urban areas with rates (42.3%) and (34.1%) respectively.

- The predominant mechanism of injury was falls, where falls responsible of one half of unintentional injuries reported on this study. While the road traffic injuries constituted 18.4%, Fire-related burns and scaled injuries were responsible for 30 injured children, which accounted 14.2% of reported injury and poisoning account 9.4% of the reported injuries. Unintentional drowning and submersions represent the smallest proportion of reported injuries (0.2%). Other unintentional injury mechanism such as suffocation, wounds, and electricity shocking were reported, and its account 7.1% of total injuries.
- Finding of this study showed age, sex, and child order differences in accidental injuries among children. The higher injury rate among boys than girls. Road traffic injuries and falls reveals more frequent among boys the other mechanisms, burns, poisoning, and drowning more frequent among girls. A statistically Significant increasing of falls rate among boys than girls while a statistically significant increasing of poisoning rate among girls than among boys. Among the youngest children, most injuries occur at home. Among older children, traffic accidents, playground and school injuries cause the most injuries.

- Injury episodes were fluctuated considerably by age. Despite this inconsistent pattern the age specific injury proportion with respect to changes in behavioral condition and activities of the children reveals that, a highest reported percent of injuries were appeared in school aged children (61.1%), followed by decline to lower percentage among those aged from 2 to 4 years old (32.2%), followed by lowest rate among infant under one year (6.6%).
- Home injuries form the highest proportion of the reported injuries in this study, whereas injuries at school and public roads were less frequent. Most of the injured children (84%) needed to have direct medical care, despite that most of injured children haven't any complication (47.7%). The total death rate related to unintentional injuries among children aged 12 years and below was 46.6 per 100,000 children.
- There is an association between child injuries and socioeconomic factors, such as parents' educational level, parents' working status, father occupation, and source of family income.
- There was a minor difference between injury occurrence and the mother age at first delivery or average interval between the last four deliveries. The variations within those two independent were not reported a statistical significant differences among child injured.
- This study reveals that housing conditions and structures were associated with the injury rates, statistical significant differences were found within the numbers of

rooms, type, altitude, and another home facilities such as presents of windows barrier, refrigerator, and wall around roof. Children live in houses with less than four rooms were have injury rates (44.5%) statistically significant higher than for those lived in house with four room or more (32.5%).

- There were no significant differences in risk of injury to children living in unsafe environment than in a properly safe environment. The only environmental factors showed a statistical significant difference was the type of the factory around the homes. Injury rats among children living in houses near a plastic and house chemicals factory was statistically significant increasing of injury rate (51.4%) higher than those living in homes didn't surrounding by factories, or be near dressmaking and food factories with rates 40.3%, 31.4%, and 15% respectively.