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Patterns of Physical Injury in Women Subjected to Intimate Partner Violence Presenting to the Emergency Department

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Abstract

Introduction: The presentation to the Emergency Department (ED) of women injured by physical violence perpetrated by their intimate partner is a grave problematic phenomenon dealt with by nurses that has yet to be thoroughly diagnosed. Typical sites of injury, as well as the characteristics of the injured women, are not fully known. This study aims to explore sociodemographic characteristics and patterns of physical injury associated with Intimate Partner Violence (IPV) in women presenting to the ED.

Methods: A retrospective cross-sectional study was conducted, analyzing 145 cases of women injured by their intimate partners and presenting at the ED.

Results: The present study identified several typical sociodemographic characteristics and patterns of physical injury in women presenting to the ED following an IPV incident. Thus, these women are likely to be Arab, around age 40, presenting with contusions, hematomas, and lacerations to the head, face, or upper limbs that do not require hospitalization, and with a history of ED visits in the past five years. Older age appears to some extent to be a protective factor against IPV.

Conclusion: This information will facilitate nursing identification and treatment of women affected by IPV and will enhance their physical and mental health.

Keywords: Intimate partner violence; Injuries; Physical violence

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Introduction

Physical manifestations of Intimate Partner Violence (IPV) are the leading cause of nonfatal injury among women worldwide. It is known that skeletal injuries commonly treated by ED nurses are the second most common manifestation of IPV towards women after psychological violence. The PRAISE team conducted a cross-section study that included 2,945 female participants at 12 fracture clinics in emergency departments in Canada, the US, the Netherlands, Denmark, and India. The results of the PRAISE study showed that one in every six women presenting to the Emergency Department (ED) for an orthopedic examination had a history of abuse in the past year, and that one in every 50 women presented with an injury directly resulting from IPV [1].

It is well known that physical abuse of women is a global pandemic. According to UN data, 243 million women were subjected to physical violence by their intimate partner in the last 12 months, and one of every three women experienced such violence at some stage of life [2]. A systematic review of data from 66 countries found that over 35% of murder cases of women are perpetrated by an intimate partner [3].

There are no precise data on the extent of violence towards women in Israel, but the common assumption is that the number of women injured by physical violence is much larger than the number of cases reported to the police, as most women avoid filing a complaint for various reasons. According to data in the Statistical Annual of the Israel Police for 2018, approximately 18,100 files were opened for physical violence and threats among spouses that year, including 13,000 files for physical violence, where in most the violence was perpetrated against the woman [4].

In Israel, physical violence towards women is prevalent in all sectors, both Arab and Jewish, and towards both new and veteran immigrants, as well as in all socioeconomic classes. Nevertheless, a

survey conducted by the UN indicates that 32% of women in Arab society had been subjected to physical violence, versus 11% of Jewish women. It is known that Arab and Jewish women differ in their patterns of physical abuse sustained, but this has not been thoroughly investigated [5]. The ED is the first place reached by women who sustain physical IPV and therefore it is very important for nurses to identify these women when presenting to the ED and thus prevent their murder [6].

When examining women's injury sites resulting from physical IPV, previous studies showed that the head, neck, and face were the most common sites injured, with a prevalence of 40% to 81%. Women who presented to the ED with head, neck, and face injuries were 7.5 times as likely to have been subjected to IPV than women whose injuries were limited to other parts of the body. In 122 cases of injury to the jaw and face, the middle of the face was often injured (60.6%), alone or together with the upper or lower third of the face. Injury to soft tissues (wounds, abrasions, and tears) was the most common (87.7%) [7]. In the study conducted by Wu, Huff & Bhandari [8], most of the injuries reported by IPV survivors were to the neck and above. In the study by the PRAISE Investigators [1], most of the injuries were fractures of the foot or ankle (9 patients, 18%). Valera, Campbell, Gill & Iverson [9] found that a large percentage of women who experienced IPV suffer mainly from recurring Mild Traumatic Brain Injury (rMTBI) as a result of the violence. This is not surprising, as these women suffer from a wide range of traumas that might cause Traumatic Brain Injury (TBI); women are slammed against walls and floors, punched and kicked in the face and head, thrown down steps and off balconies, sustain head injuries as a result of blows and hard objects thrown at them, and violently shaken [10]. The findings regarding injuries typical of women subjected to physical IPV are clearly inconsistent, and their prominent sociodemographic characteristics are still unclear.

The present study aims to explore sociodemographic characteristics and patterns of physical injury associated with IPV in women presenting to the ED. This knowledge can help nurses identify patients who have been subjected to IVP.

Methods

Study design

This study is a retrospective cross sectional.

Sample and data collection

This study involved examination of the medical records of all IPV cases presenting to the ED of a medical center located in north central Israel from January 1st, 2016 to August 31st, 2020, either by self-referral or by referral from other agencies such as the police. IPV was defined as any violence towards a woman perpetrated by her male intimate partner. Inclusion criteria were married women who presented to the ED following a violent incident perpetrated by their husband and were seen by an orthopedic surgeon and a nurse.

In total, the study included 148 cases of IPV directed at women that were seen by an orthopedic surgeon and a nurse. Three cases were excluded as the perpetrator was not the woman's husband. Thus, the final sample included 145 cases. The following data were collected from the medical records:

1. Sociodemographic data: Age, nationality (Jewish or Arab), country of birth, number of children;

2. Data regarding the violent incident: Type of injury, site of injury, mechanism of injury, number of injuries;

3. Data regarding the visit: Type of referral (self-referral or referral by the police), length of stay;

4. Number of visits to the ED in the past five years.

Ethical considerations

The study was approved by the institutional Helsinki Committee of the hospital at which it was conducted.

Data analysis

Data were analyzed using SPSS for Windows (version 26.0, SPSS Inc., Chicago) statistical software package. Descriptive statistics (means, standard deviations, percentages) were presented. Pearson correlations, Chi-square tests, and t-tests for independent samples were calculated to examine associations between the research variables. Statistical significance was set at $p<0.05$.

Results

The study included a sample of N=145 women who presented to the ED with injuries as a result of IPV during 2016-2020. The mean age of the women was M=39.7 years (SD=13.66, range: 20-72). There was a significant difference between the mean age of Jewish and Arab women [t (144) = -4.25, $p<0.01$], with Arab women being younger (M=37.15, SD=12.01) than Jewish women (M=47.80, SD=15.50). The women had M=3.35 (SD=2.57, range 0-13) children. Most of the women (92.5%, n=134) were born in Israel, while 4.1% (n=6) were born in the USSR, and 3.4% (n=5) in Ethiopia. Most women were Arab (76%, n=110), and only 24% (n=35) Jewish (Table 1).

In the past five years, the women visited the ED M=5.43 (SD=6.42, range: 1-48) times. In these visits, they spent M=3.52 (SD=1.72, range: 1-8) hours on average at the ED. Most were discharged home (93.2%, n=136), while n=8 (5.5%) left before treatment completion. Only one woman was hospitalized. A negative association was found between the woman's age and her number of visits to the ED in the past five years (r= -0.26, $p<0.01$). Namely, the older the woman, the more visits to the ED in the past five years (r= -0.26, $p<0.01$).

The women presented with various types of injuries, with the most common type of injury being contusion (52.4%, n=76), followed by hematoma (29.7%, n=43) and lacerations (20%, n=29). In contrast, the least common types of injuries were fractures (3.4%, n=5) and bleeding (1%, n=2).

The most common sites of injury were head and upper limbs (47.9%, n=69, both of equal distribution), and face (35.4%, n=51). In contrast, the least common sites of injury were fingers and toes (4.2%,

Table 1: Sociodemographic characteristics of the women (N=145).

Variable		N	%	M	SD
Age				39.7	13.66
	Jewish women			47.8	15.5
	Arab women			37.15	12.01
Number of children				3.4	2.57
Country of birth	Israel	134	92%		
	USSR	6	4.10%		
	Ethiopia	5	3.40%		
Nationality	Jewish	35	24%		
	Arab	110	76%		

Table 2: Age differences in various sites of injury.

Site of injury	Age of women who not injured in these sites		Age of the women injured in these sites		T(df=143)	P-value
	M	SD	M	SD		
Head	41.81	14.87	37.57	11.19	1.88	p<0.01
Face	39.07	13.86	41.13	13.31		p>0.05
Chest	39.5	13.4	40.51	14.38		p>0.05
Buttocks	40	13.75	32.5	7.32		p>0.05
Upper limbs	41.26	13.48	38.18	13.76		p>0.05
Back	41.86	13.94	33.31	10.49	3.36	p<0.01
Hands	39.53	39.53	40.8	15.94		p>0.05
Neck	40.88	40.88	35.25	10.59	1.98	p<0.05
Abdomen	40.81	40.81	33.45	10.96	2.27	p<0.05
Fingers and toes	40	40	35	15.49		p>0.05

n=6). Women injured in the head, neck, abdomen, and back, were found to be younger than women who presented with other sites of injury (Table 2).

In addition, a negative association was found between the woman's age and the number of physical injuries as a result of IPV sustained (r= -0.23, p<0.01). Namely, the younger the woman, the higher the number of injuries.

The women reported being subjected to various injury mechanisms. The most common mechanism of injury was beating (31.03%, n=45). Other less common injury mechanisms were slapping (13.2%, n=19), punching (11.8%, n=17), kicking (2.8%, n=4), and strangulation (2.8%, n=4).

The most common injury mechanism among Jewish women was shoving, while among Arab women it was beating. Beating and shoving were found to be more common among Arab than among Jewish women. In contrast, cutting with a knife and strangulation were more common among Jewish than among Arab women (Table 3). In addition, most of the Jewish women were referred to the ED by the police.

Moreover, among the Jewish women 14% (n=5) were found to have a psychiatric disorder, while among the Arab women none had a psychiatric disorder.

Discussion

The present study explored sociodemographic characteristics and patterns of physical injury associated with IPV in women presenting to the ED. The women most commonly sustained injuries to the head, face, and upper limbs. This finding is consistent with previous studies. Thus, a meta-analysis by Wu et al. [8] revealed that female victims of IPV that presented to EDs had identifiable injury patterns. Accordingly, unwitnessed head, neck, or facial injuries were significant markers for IPV. This was confirmed in later studies as well [11-13].

In the current study women reported various injury mechanisms, however the most common were being beaten and being hit with an object, with about one third and one fifth of the women reporting being injured by these mechanisms, respectively. Notably, over half the total sample reported being injured by one of these two mechanisms of injury. That is, the women's violent male partners most commonly used hands and objects in order to injure them. These findings are consistent with previous studies [8,13]. These mechanisms of injury also explain the common sites of injury in the present study – head, face, and upper limbs – since beating and hitting with an object often affect areas of the body that are at hand height.

The mean age of the women was 40, consistent with a previous study conducted by Davidov et al. [11]. Women in the present study had visited the ED on average about five times in the past five years, ranging from once to 48 times. This finding may reflect the mechanism of "leaving and returning" utilized IPV. Consistent with this finding Leppäkoski, Åstedt-Kurki & Paavilainen [14] found that over one-fifth of ED professionals reported repeatedly encountering the same women visiting the ED for IPV related injuries.

The literature reveals that abused women often return to their abusive partners [15,16]. Moreover, abused women often hold similar misconceptions, such as believing that what they are experiencing is "normal" or that they precipitate or deserve abuse because of "bad" behavior [17]. This highlights ED professionals' role in guiding women towards available resources [14].

In the present study, most of the women were discharged back to their homes. That is, in most cases the women sustained injuries that were severe enough to seek treatment in the ED, but not severe enough to require hospitalization. This finding is consistent with a previous study, in which only about 5% of the women who presented to the ED with injuries associated with IPV were hospitalized [11]. Moreover, the most common types of injury in the present study were contusions, hematomas, and lacerations, similar to a previous study [7]. In contrast, a minority of women sustained fractures or bleeding. That is, for the most part the injuries did not cause significant harm to the body. This too is consistent with previous studies and suggests that the women's presentation to the ED was primarily a cry for help [7,18].

This study found that older women had less ED visits in the past five years and less injuries as a result of IPV. In a recent meta-analysis, being older was identified as a protective factor against experiencing IPV [19]. Similarly, in a US survey, a substantial portion of IPV was experienced at a young age [20]. However, the reason for the negative associations between age and the number of ED visits and the number of injuries as a result of IPV, may be that older women might are less likely to seek help in the ED, possibly due to past negative experiences with the healthcare system, such as not receiving the required help and support.

Table 3: Mechanism of injury: Jewish *vs.* Arab women.

Mechanism of injury	Jewish women n=35		Arab women 110=n		X^2(df=1)	P-value
	n	%	n	%		
Beating	1	2.9	44	40	16.6	p<0.01
Hitting with an object	5	14.7	29	26.4		p>0.05
Shoving	8	23.5	11	10	4.15	p<0.05
Slapping	5	14.7	14	12.7		p>0.05
Punching	3	8.8	14	12.7		p>0.05
Cutting with a knife	4	11.8	2	1.8	6.43	P<0.05
Pulling	1	2.9	4	3.6		p>0.05
Kicking	1	2.9	3	2.7		p>0.05
Strangulation	3	8.8	1	0.9	6.02	P<0.05
Imprisonment	0	0	4	3.6		p>0.05
Running over	0	0	1	0.9		p>0.05

Moreover, in the present study women who sustained injuries to the head, neck, abdomen, and back, were younger than women who sustain injuries to other body areas (35 *vs.* 40, respectively). In contrast, no age difference was found between women injured in the face, chest, buttocks, upper limbs, lower limbs, toes and hands, with their mean age being around 40. That is, younger women appear more likely to sustain more severe injuries. That is, again, older age may be to some extent a protective factor against IPV.

Most of the women in this study were Arab (76%), suggesting that physical IPV is more prevalent in Arab society. Despite the many changes that Arab society in Israel has undergone in the last three decades, the social perception that justifies a man's violence towards his spouse and the patriarchal social structure that encourages maintaining family integrity at any cost, are still prevalent. Consequently, many Arab women may prefer to remain in an abusive marital relationship [5].

However, this finding may also reflect different patterns of use of Healthcare Services (HCS) in these two communities. In a recent Israeli study, Daoud et al. [2] observed higher use of medical HCS (ED use and hospitalization) among Arab women subjected to IPV, than among Jewish women. The researchers suggested that the high use of medical HCS among Arab women points to access problems in seeking help through social and mental HCS. Arab women might be reluctant to use the latter HCS, as such services are often stigmatized in Israel's Arab community and using them would imply IPV disclosure that could endanger the woman. In contrast, the researchers suggested that Jewish women who are subjected to IPV may be more likely to use social and mental HCS, which may reduce their need for medical HCS.

In the present study, the most common mechanism of injury among Jewish women was shoving, while among Arab women it was beating. Beating was also found to be more common among Arab than among Jewish women. In contrast, cutting with a knife and strangulation were more common among Jewish than among Arab women, however these were isolated cases. Moreover, most Jewish women had been referred to the ED by the police. These findings support the assumption regarding differences in patterns of use of medical HCS in these two communities. Thus, while Arab women are more likely to seek help from medical HCS for any violent incident, Jewish women may tend to use medical HCS only in more extreme cases.

Finally, in the present study Arab women were on average younger than Jewish women. This finding suggests that young Arab women are especially vulnerable to physical IPV.

Limitations

This study has several limitations. The study was conducted at a single institution that serves a population whose characteristics may differ from populations served by other hospitals in the country. In addition, the use of secondary data imposes a limitation, as the reliability, accuracy, and integrity of the records are uncertain. Moreover, the study included women who were identified as IPV victims. Women who presented to the ED with physical injuries but were not identified as IPV victims were not included, and this might have led to potential bias.

Conclusion

The present study identified several typical sociodemographic characteristics and patterns of physical injury in women presenting to the ED following an IPV incident. Thus, these women are likely to be Arab, around age 40, presenting with contusions, hematomas, and lacerations to the head, face, or upper limbs that do not require hospitalization, and with a history of ED visits in the past five years. ED nurses should rule out the likelihood of IPV in women with these characteristics who present to the ED and guide them towards available resources. Nurses have a major role in identifying, managing treatment, and referring women subjected to abuse to appropriate treatment factors. In this study, older age appears to some extent to be a protective factor against IPV, however further research is needed to explain this finding.

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