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Title Page

Non-urgent visits to emergency departments: A qualitative study in Iran exploring causes, consequences, and solutions

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27 **Non-urgent visits to emergency departments: A qualitative study in Iran exploring** 28 **causes, consequences, and solutions**

31 **Abstract**

32 **Objective:** To explore the causes for, consequences of, and solutions for nonurgent (NU) visits
33 to EDs from the healthcare providers' viewpoints.

34 **Design:** We used a qualitative design, conducting in-depth, open-ended, semi-structured, and
35 face-to-face interviews and applying inductive content analysis.

36 **Setting:** A territory, teaching, and military hospital in Iran.

37 **Participants:** Healthcare providers including nurses, emergency medicine specialists (EMSs),
38 and emergency medicine resident.

39 **Results:** Twelve themes of causes for, nine themes of consequences of, and four solutions for
40 NU visits to the EDs were identified. The causes included convenient access, financial incentives
41 for EMSs, creating wrong and false culture and norms by some healthcare centers, lack of
42 knowledge, inappropriate referrals, willing to pull strings, higher priority of the EDs for
43 hospitalization, receiving rapid care, overcrowding in other hospital departments, well-equipped
44 EDs, overestimating the urgency of the condition, and low costs. The consequences were patients
45 and employees' dissatisfaction, overcrowding and the increases in the workload of the EDs,
46 disruption to the delivery of care to urgent and semi-urgent (USU) patients, reductions in the
47 efficiency and effectiveness of employees, ED employees' fatigue and burnout, unreasonable
48 expectation of receiving elective care, imposing financial burdens, conflict and violence, and
49 increased medical errors. And finally, the possible solutions for controlling and preventing the NU
50 visits included regulatory plans, awareness raising plans, payment mechanism reforms, and
51 organizational and managerial initiatives.

52 **Conclusion:** We highlights the need for high level attention to appropriate use of EDs in Iran as
53 a LMICs. In order to control and prevention of NU visits, it is suggested that policy makers should
54 design and implement a combination of possible solutions due to the complexity nature of EDs.

56 **Strengths and limitations of this study**

- 57 1. This study is the first to qualitatively explore the causes, consequences, and possible
58 solutions of NU visits in EDs.
- 59 2. Semi-structured, in-depth, and open-end interviews with key informants including EMSs,
60 nurses, and emergency medicine resident allowed us to gather the data from multiple
61 viewpoints.
- 62 3. The findings are limited to one ED which was studied.

64 **Introduction:**

65 The emergency departments (EDs) have responsible and designed to provide rapid, high-quality,
66 continuously accessible, and unscheduled care for emergency cases (1, 2). It means that EDs
67 are not ideal place for nonurgent (NU) conditions (3). In the recent years, use of EDs by NU
68 patients has been reported globally (4-8). The use of EDs for receiving NU care have potentially
69 negative consequences, including crowding, increased costs, poor health outcomes, lack of
70 continuity of care, and misdiagnosis and mistreatment (9-11).

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3 71 The causes for NU conditions are not clearly understood (12), especially in low and middle income
4 72 country settings. To the best of our knowledge, there is no comprehensive study to identify the
5 73 causes for, consequences of, and possible solutions for that problem in Iran as a LMIC. This study
6 74 was conducted to determine their causes, consequences and solutions from providers'
7 75 viewpoints.
8 76

10 77 **Methods**

11 78 **Design**

12 79 Using a qualitative descriptive design (13), we conducted in-depth, open-ended, semi-structured,
13 80 and face-to-face interviews with the physicians and nurses working in an ED in order to capture
14 81 their experiences and perceptions. Qualitative interviews are particularly useful for exploring
15 82 stakeholders' viewpoints, as they give respondents the opportunities for discussing factors that
16 83 the researchers may not have anticipated (14). Choosing a face-to-face interview design ensured
17 84 that the researchers could be confident that they had discussed the information effectively. The
18 85 study protocol, methods and materials, and interview procedures were reviewed and confirmed
19 86 by the research committee in Baqiyatallah University of Medical Sciences (BUMS).
20 87

21 88 **Setting, recruitment, and sampling**

22 89 The interviews were conducted in an Iranian military and teaching ED hospital. The researchers
23 90 used a combination of snowball and purposeful sampling methods to choose and recruit key
24 91 informants from the healthcare providers working in the ED. The following key informants were
25 92 interviewed: nurses working in the ED (n=8); EMSs (n=2), and an emergency medicine resident.
26 93

27 94 **Data collection**

28 95 The researchers asked the key informants about their viewpoints on the causes for NU visits,
29 96 consequences, and possible solutions in order to implement appropriate and effective reforms.
30 97 Further questions at the end of the interviews were based on the discussion process, and the
31 98 researchers checked whether all topics had been covered. One of the researchers (SMM)
32 99 interviewed with the key informants in the ED. Recruitment of the new key informants continued
33 100 until the thematic and data saturation, that is, additional interviews did not develop any new idea.
34 101 Due to interviewees' request, the audio was not recorded by the tape-recorder. Then, all
35 102 interviews were transcribed and coded.
36 103

37 104 **Data analysis**

38 105 The interviews were fully transcribed verbatim after each interview and were rechecked in
39 106 numerous occasions for assuring of accuracy, and imported into MAXQDA® software to assist
40 107 qualitative data management and analyses. Using the inductive content analysis, the researchers
41 108 identified, extracted and organized significant themes through internal discussion between the
42 109 research team. Key steps of analyses included as follows (15): preparation, organizing, and
43 110 reporting. The data were discussed collaboratively in several meetings between the research
44 111 team to ensure consensus on thorough and consistent coding.
45 112

46 113 This study used two criteria which had to be met to prove and strengthen the trustworthiness:
47 114 credibility and transferability (16). The researchers enhanced the credibility of the results through
48 115 the source triangulation from obtaining in-depth information from a range of key informants on the
49 116 research questions. In addition, we described the study setting, context, process of data
50 117 collection, and analysis of data to enhance the transferability of the findings.
51 118

52 119 **Ethical considerations**

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3 115 The study was approved by the Ethics Committee of Research in the Baqiyatallah University of
4 116 Medical Sciences (Ref: CH/7019/998). After giving written information about the study and its
5 117 aims to the participants, the researchers obtained verbal informed consents for participating in
6 118 the study from them before conducting the interviews.
7

8 119

9 120 **Results:**

10 121 12 themes of causes for NU visits and 9 themes of their consequences were identified (Figure 1).
11 122 The causes for NU visits included: convenient access, financial incentives for EMSs, creating
12 123 wrong and false culture and norms by some healthcare centers, lack of knowledge, inappropriate
13 124 referrals, willing to pull strings, higher priority of the EDs for hospitalization, receiving rapid care,
14 125 overcrowding in other hospital departments, well-equipped EDs, Overestimating the urgency of
15 126 the condition, and low costs.

16 127 Participants indicated that NU visits had some negative consequences for the EDs, including
17 128 patients and employees' dissatisfaction, overcrowding and the increases in the workload of the
18 129 EDs, disruption to the delivery of care to urgent and semi-urgent (USU) patients, reductions in the
19 130 efficiency and effectiveness of employees, ED employees' fatigue and burnout, unreasonable
20 131 expectation of receiving elective care, imposing financial burdens, conflict and violence, and
21 132 increased medical errors.

22 133 Possible solutions for controlling and preventing the NU visits were also categorized into four
23 134 groups, including regulatory plans, awareness raising plans, payment mechanism reforms, and
24 135 organizational and management initiatives (Figure 2).

25 136 The detailed descriptions of each theme are as follows:

26 137 **Causes:**

27 138 **1. Convenient access**

28 139 Because the ED is open 24/7 and provides services, patients' access to this department is
29 140 relatively better and easier than other healthcare service centers. A convenient and easy access
30 141 to the EDs was one of the causes that the interviewees mentioned. One of the interviewees said:

31 142 *"The mentality of the entire community is that access to the ED is easier than*
32 143 *other healthcare centers and it can make their admission easier."* (P1)

33 144 **2. Financial incentives for emergency medicine specialists (EMSs)**

34 145 Because the EMSs receive the fee-for-service payment for admitting each patient to the ED, one
35 146 of the causes the interviewees stated as a factor affecting the admission of NU patients was the
36 147 EMSs' financial incentives. In other words, there is a direct financial relationship between the
37 148 patient's admission to the ED and the increases in the EMSs' income in Iran. One of the
38 149 interviewees said in this regard:

39 150 *"There is a financial relationship between the number of patients admitted and*
40 151 *the specialist's fee for service payment. There are some attending physicians*
41 152 *whom the EMSs in the screening room have been their old medical students.*
42 153 *One day, one of these EMSs in the screening room showed me a text message*
43 154 *received from his attending physician who was in the ED in that day, in which*
44 155 *he had asked the EMSs to let patients enter the ED."* (P10)

45 156 **3. Creating wrong and false culture and norms by some healthcare centers**

46 157 Patients' previous referrals to some healthcare centers, especially private centers, have a
47 158 significant effect on their current NU visits to the EDs, so that patients referring to the private
48

1
2
3 159 centers to receive services are faced with receiving unnecessary services, which is due to the
4 160 profiteering look of some hospitals and physicians to the patients:

5 161 *“Private hospitals are encouraging this. Because when patients come to the*
6 162 *EDs of private hospitals to receive services, they prescribe a number of*
7 163 *unnecessary procedures for them and create this mentality in the patients that*
8 164 *the EDs can do so and provide any services. As a result, a negative attitude*
9 165 *and mentality forms in the patients, and when they go to the public hospitals,*
10 166 *they expect to receive similar services to the private hospitals.” (P2)*

13 167 **4. Lack of knowledge**

14 168 Lack of patients' knowledge and awareness of the emergency and urgent conditions affects the
15 169 NU visits to the EDs. This is due to the lack of education and training by the mass media and the
16 170 formation of a false culture. One of the interviewees considered it as a main factor:

17 171 *“The main factor is the knowledge and culture of our people and they do not*
18 172 *have adequate knowledge, and the mass media have not also provided*
19 173 *enough information for them about this issue.” (P2).*

21 174 **5. Inappropriate referrals**

22 175 Referring the NU patients to the EDs by the clinic physicians, either verbally or in writing, for
23 176 admission is commonplace, to which most of the participants referred. Some physicians who do
24 177 not have beds in the hospital are often not responsible and confine themselves to receive a sheet
25 178 of the patient's insurance notebook and refer them to the EDs. It should be noted that this is rooted
26 179 in some physicians' profiteering, so that the physician refers the patients to the ED with the aim
27 180 of not losing them. Because physicians are not willing to lose their patients and urge patients to
28 181 go to their private offices or to a private hospital where they are working there for later visits, they
29 182 refer the patients to the EDs. One of the interviewees spoke more clearly and said:

30 183 *“We have had a lot of patients, to whom at the same time the physician has*
31 184 *given two letters: one for the hospital admissions officer and another for the*
32 185 *ED. The physician also tells the patient: “go first to the hospital admissions*
33 186 *officer and if he doesn't arrange a hospital appointment for you, then go to the*
34 187 *ED with another letter.” (P10)*

35 188 It should be noted that inappropriate referrals to the EDs are not only by physicians, some
36 189 hospitals also refer the patients to the EDs by an ambulance without coordination. Moreover, non-
37 190 professional people, such as the physicians' secretaries and the guardians, may also advise
38 191 patients to go to the EDs.

41 192 **6. Willing to pull strings**

42 193 Having kinship relationships and willing to pull strings was one of the causes that the interviewees
43 194 referred to:

44 195 *“We had a patient which had come to the ED and said: “I'm a close friend of*
45 196 *Mr. X and this has been said to me to go to the ED and its personnel deal with*
46 197 *your illness faster.” (P9).*

49 198 **7. Higher priority of the EDs for hospitalization**

50 199 Because the EDs have a higher priority, compared with other hospital departments e.g. inpatient
51 200 admissions unit and clinics, for admitting patients and referring them to inpatient departments, the
52 201 patients are more likely to go to the EDs to be admitted to the hospital and remain in them until

1
2
3 202 the beds available in the inpatient departments are empty. In other words, patients use the EDs
4 203 to remain in the hospital until a bed in the hospital inpatient department is empty:

5 204 *"Some NU patients use the ED until a bed in an inpatient department is empty."*

6 205 (P4)

8. Receiving rapid care

8 206
9 207 Due to the nature of the EDs, the provision of the diagnostic and therapeutic services is of high
10 208 speed. This was not neglected by the interviewees and they acknowledged that the faster delivery
11 209 of services is a reason for NU visits. According to one interviewee:

12 210 *"The patients come to the ED to receive services and consultations faster; for*
13 211 *example, if we ourselves (the personnel) want to make a rheumatology*
14 212 *appointment, it will take about one month; but for the patients referring to ED,*
15 213 *it will take up to the very next day."* (P4)

9. Overcrowding in other departments

16 214
17 215 Patients prefer to go to the EDs to receive services when some departments and units such as
18 216 clinics and hospital admissions unit, etc. are overcrowded. The overcrowding in the clinics
19 217 wanders the patients and they inevitably go to the EDs for receiving their required services. It
20 218 should be noted that because the hospital is famous and its services are of high quality, patients
21 219 from other cities also come to this hospital:

22 220 *"The departments and clinics are overcrowded, and as the patients have*
23 221 *usually had a long journey, therefore, they choose the ED to receive services."*

24 222 (P5)

10. The well-equipped EDs

25 223
26 224 Having all the diagnostic facilities, as well as skilled personnel in the EDs was one of the reasons
27 225 that the interviewees referred to. One of the interviewees mentioned this with an example:

28 226 *"The focus on patients is more in the ED, in which all diagnostic groups and*
29 227 *facilities are available. But if patients go to a physician's office and he/she*
30 228 *requests a CT scan for them, they will go to the CT Scan center, and after*
31 229 *performing the CT Scan, if the head of CT Scan center writes below the report*
32 230 *sheet that performing the MRI is also required, the patients should go through*
33 231 *another process to perform the MRI. However, in the ED, the process is not*
34 232 *so. In general, the patient is assured that the physicians, nurses and guides,*
35 233 *as well as all required facilities are available in the ED."* (P8)

11. Overestimating the urgency of the condition

36 234
37 235 Some patients use several ways to be admitted to the EDs. One of the most unconventional and
38 236 unwise ways used by patients for being admitted to the EDs is to exaggerate the severity of their
39 237 illness. This was well expressed by the interviewees:

40 238 *"Some of the patients exaggerate their illnesses and show their condition and*
41 239 *illness worse and more urgent in order to be admitted to the ED."* (P5)

12. Low costs

42 240
43 241 Because all inpatient services are free of charge for patients, they will endeavor to be hospitalized
44 242 in any way to reduce considerably their costs. In other words, as soon as the patient's medical
45 243 record is set, the costs of treatment will be free. Therefore, one of the reasons for NU patients to
46 244 go to the EDs is to try to pay the lowest possible costs:

245 *"To pay less, their costs will be free of charge if they are admitted to the*
 246 *hospital. But the costs of outpatient services are not free of charge."* (P6)

247

248 **Consequences:**

249 **1. Patients and employees' dissatisfaction**

250 NU visits to the EDs cause both patients and service providers' dissatisfaction. Slowing down the
 251 process of providing services in EDs will lead to the dissatisfaction in patients due to NU visits
 252 and a feeling of wandering by them. Also, other patients with USU conditions also feel dissatisfied
 253 with the healthcare system due to the lack of timely delivery of services in EDs. In addition, the
 254 problems caused by overcrowding and repeated protests by patients also lead to dissatisfaction
 255 among the personnel and have negative effects on them. One of the interviewees acknowledged
 256 that:

257 *"The NU patients themselves become pessimistic about the system because*
 258 *they think that they are wandering and circular. If they are not admitted to the*
 259 *ED, they say that they have been disrespected, and they protest to the hospital*
 260 *manager."* (P9)

261 **2. Overcrowding and the increases in the workload of the EDs**

262 The majority of interviewees believed that with an increase in NU visits to the EDs, it was expected
 263 that these departments would be busy and overcrowded and the workload would increase:

264 *"This has a negative effect on the works of the ED, and it can cause to slow*
 265 *down work and duties."* (P6)

266 **3. Disruption to the delivery of care to urgent and semi-urgent (USU) patients**

267 The interviewees believed that NU visits to the EDs would impede the provision of services to
 268 the truly urgent patients and patients requiring urgent services. This is most often due to the
 269 lack of knowledge and awareness of NU patients who have not understood that unnecessary
 270 visits can lead to a risk for other patients with urgent conditions. Also, if NU patients have fewer
 271 visits, the employees will have enough time to provide emergency services:

272 *"The urgent patients are neglected, but if the department isn't crowded, the*
 273 *patients' work is getting faster and they will receive services faster. In this ED,*
 274 *there was a cardiovascular patient for whom, because the department wasn't*
 275 *crowded, we got an electrocardiogram once, in which there was not any*
 276 *problem, and when again we did it, we realized that the patient was Vtac and*
 277 *the patient was immediately rescued; but if this department was overcrowded,*
 278 *there was no way to save the patient's life. Because of the overcrowding, we*
 279 *had a patient on whom we did not focus and the CPR was required for him and*
 280 *he didn't survive."* (P4)

281 Another interviewee said with a bitter experience that:

282 *"The urgent patients who are really in need are not dealt with; we had a patient*
 283 *who was code 247 (MI), but two hours later he was taken to perform*
 284 *angiography, while his golden time was 30 minutes."* (P10)

285 **4. Reductions in the efficiency and effectiveness of employees**

286 The interviewees believed that NU visits reduced the efficiency and effectiveness of personnel:

287 *"As an obstacle, they avoid doing good work and they can have negative*
 288 *effects on the good work of the personnel."* (P1)

5. The ED employees' fatigue and burnout

Because of the high number of referrals and visits and the inevitability of personnel to provide patients with medical care services, NU visits have a negative effect on the emergency work process and will result in employees' fatigue, burnout and reluctance.

"It leads to tension among the personnel, because they should pay attention to both NU and USU patients. They have to deal with all patients." (P1)

6. Unreasonable expectation of receiving elective care

When NU patients go to the EDs and are hospitalized, this leads to an expectation of receiving elective care. Because the patient, with admission to the ED, thinks that his condition also is urgent and, therefore, requires several treatment procedures:

"It leads to the unreasonable expectation for elective treatments. When these patients are admitted to the ED, they ask for different treatments. For example, a patient with low back pain constantly asks: "when will my MRI be performed?" (P3)

7. Imposing financial burdens

Every patient admitted to the ED needs specialized staff (i.e. physicians, secretaries, nurses, and etc.) and special equipment, while he/she could receive the necessary care in the outpatient departments at lower costs. Therefore, NU visits impose additional financial burdens on the health center, as well as on the insurance system.

One of the interviewees made it clearer by giving an example, as follow:

"This causes the depreciation of the hospital equipment because of inappropriate use of them. A patient had come here and a blood test (for example, blood culture) had been asked for him, and then a specialist visited and discharged him. It means that two hours after ordering the blood test for the patient, he was discharged, while the result of the blood culture was usually prepared after 48-72 hours later. Therefore, the result of this test remained unused." (P10)

8. Conflict and violence

One of the serious risks of NU visits is the creation of tension and conflict between patients and personnel, to which interviewees also referred. With increasing workload due to NU visits, patients' expectations rise and also the employees cannot properly serve patients, and this causes stress and conflict.

9. Increased medical errors

The interviewees believed that with increasing NU visits, because of providing faster patient care and treatment, the quality of services and visits as well as the patient care would decrease. These increase the probability of occurring medical errors due to overcrowding:

"When the ED is overcrowded by the NU visits, because the physician wants to make the system smoother, he/she spends less time on patients and wants to get rid of them faster. Therefore, the direct care and direct monitoring and follow-up of patients will be decreased." (P8)

Solutions:

331 The interviewees proposed several solutions for preventing NU visits and referrals, which can be
332 categorized into four groups of regulatory plans, awareness raising plans, payment mechanism
333 reforms, and organizational and management initiatives.

334 The regulatory plans included the delegation to the triage nurses and EMSs, creating the culture
335 of accountability among physicians, effective monitoring and evaluation of healthcare centers,
336 and setting rules to prevent NU visits (applying rules against kinship relationships and pulling
337 strings).

338 The awareness raising plans solutions included increasing public and patients' awareness, and
339 increasing physicians' awareness.

340 Payment mechanism reforms solutions included removing financial incentives for admitting NU
341 patients, developing an appropriate payment system, receiving higher fees from NU patients.

342 Organizational and management initiatives solutions included setting up 24-hour and boarding
343 clinics, referring the patients of other military hospitals, improving the quality of services in other
344 military hospitals, strengthening the para-clinical departments to perform the diagnostic
345 procedures, and strengthening the referral system.

346 **1. Regulatory plans**

347 ***1.1. Delegation to the triage nurses and EMSs***

348 To prevent the NU visits, the interviewees believed that the triage nurses and EMSs had to be
349 delegated, so that they can properly guide and refer patients. One of the interviewees stated that:

350 *"The EMSs and nurses should be given power to refuse the NU patients'*
351 *admission."* (P6)

352 ***1.2. Creating the culture of accountability among physicians***

353 Creating and developing the culture and channels of accountability among physicians for referring
354 and admitting patients to the EDs is an important approach, to which some interviewees noted.
355 These can make physicians more sensitive to the referrals to the EDs and the EMSs will also be
356 more cautious about admitting NU patients to EDs:

357 *"The accountability mechanism among physicians should be created."* (P1)

358 ***1.3. Effective monitoring and evaluation (M&E) of healthcare centers***

359 In order to avoid healthcare centers profiteering which could create an inappropriate culture of
360 NU visits, interviewees stated that:

361 *"The M&E of healthcare centers in the private sector should be increased to*
362 *prevent their profiteering, because this leads to an inappropriate culture".* (P2)

363 ***1.4. Setting rules to prevent NU visits***

364 Implementation of immutable rules and laws to deal with pulling strings is also a way to prevent
365 NU visits. In addition, setting the new rules for dealing with and preventing NU visits was another
366 solution that the interviewees referred to:

367 *"Rules should be set to prevent such visits and encourage the prevention of*
368 *NU admissions."* (P2)

369 **2. Awareness raising plans**

370 ***2.1. Increasing public and patients' awareness***

371 Most interviewees believed that people had to be aware of urgent and NU visits through promoting
372 their awareness in the mass media, schools, social networks, as well as in the EDs:

373 *"Information should be provided to patients, so that they are informed through*
374 *the mass media. But this approach is not also used properly. For example,*

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3 375 *some TV series have been shown to the people, in which it has been shown*
4 376 *that in the ED everything is calm and people are inspired if they go to an ED,*
5 377 *they will be faced with such quiet environment. Therefore, people expect to*
6 378 *have a quiet environment when they come to an ED, so that everything is in*
7 379 *place and they are dealt with quickly." (P1)*

9 380 Another interviewees believed that people had to be informed about the consequences of patients'
10 381 late visits, and the public had to go to the ED for receiving services at the right time:

11 382 *"We need to teach people about the consequences of early and late visits for*
12 383 *receiving services through the mass media." (P2)*

14 384 The interviewees believed that patients had to be justified:

15 385 *"People should be made aware of not referring to the ED for NU conditions."*
16 386 *(P7)*

18 387 One of the interviewees said something interesting:

19 388 *"Creating a culture should be over time. We tell our colleagues that don't admit*
20 389 *such patients, and if you do this once and admit NU patients to the ED, the*
21 390 *patients go to the ED for a lifetime and want to be admitted." (P11)*

23 391 **2.2. Increasing physicians' awareness**

24 392 Increasing physicians' awareness was one of the solutions, to which the interviewees referred.
25 393 Interviewees believed that, in addition to the clinic physicians, the EMSs also had to be advised
26 394 to refrain from admitting NU patients to the EDs under any circumstances:

27 395 *"EMSs should be justified, because some of them when sometimes see that*
28 396 *the ED is empty, just for that reason they say that the department is empty and*
29 397 *let the NU patients be admitted." (P3)*

31 398 **3. Payment mechanism reforms solutions**

32 399 **3.1. Removing financial incentives for admitting NU patients**

33 400 As mentioned in the Causes section, the physicians' financial incentives have effects on admitting
34 401 NU patients to the EDs. Therefore, one of the solutions provided by the interviewees (by the
35 402 nurses and not by the EMSs) was that the financial relationship between the patients' admission
36 403 and the physicians' payments had to be disconnected. Disconnecting the physicians' income from
37 404 patients' admission can also be effective in improving the quality of care provided by the
38 405 physicians. However, this should be accompanied by other financial incentives in order to prevent
39 406 the physicians from not providing essential services to the patients:

42 407 *"There should be no relationship between the physicians' income and the*
43 408 *hospital admission rate in the ED, and the financial relationship must be*
44 409 *discontinued." (P1)*

46 410 **3.2. Developing an appropriate payment system**

47 411 The reform of the payment system was a solution that the interviewees referred to. This is such
48 412 that the physicians often have motivation for admitting patients who have NU problems because
49 413 this has no significant effect on their income, compared with those with acute conditions, and,
50 414 therefore, they prefer to admit patients with more stable conditions, which has a great effect on
51 415 the NU visits. One of the interviewees believed that:

53 416 *"The policies of a health care system should be such that patients who need*
54 417 *more care should pay more." (P2)*

55 418 **3.3. Receiving higher fees from NU patients**

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3 419 Receiving higher fees from NU visits is an important strategy that should be paid special attention
4 420 by the health policymakers. If patients come to this conclusion that receiving urgent services in
5 421 the EDs for NU conditions has higher costs than that in other healthcare centers such as clinics,
6 422 polyclinics, and etc., they will not select the EDs for receiving services. This solution, in addition
7 423 to the short-term positive effect on the number of NU visits, will also have a major effect in
8 424 reducing NU visits in the long run. One of the interviewees believed that:

9 425 *“NU patients coming to the ED should pay fees from 30% to 40% of total cost.”*
10 426 *(P9)*

11 427 **4. Organizational and management initiatives**

12 428 **4.1. Setting up 24-hour and boarding clinics**

13 429 Setting up a 24-hour and boarding clinic for visiting patients was one of the solutions, to which
14 430 some interviewees referred:

15 431 *“The 24-hour backup centers should be set up. We have open clinics for up to*
16 432 *23 o'clock, and after that, patients who have had fun at their other hours or*
17 433 *patients who have had, for example, sore throat, gradually come to the ED.”*
18 434 *(P1)*

19 435 Of course, all interviewees were not agreed with the establishment of a 24-hour clinic, as one of
20 436 them stated that:

21 437 *“Specialized clinics are not justified because they are not cost-effective.” (P3)*

22 438 One of the interviewees believed that in some days of the year, when the patients' visits to the
23 439 EDs were high, the specialized clinic had to be set up:

24 440 *“The clinic should be developed and more patients should be admitted. Like*
25 441 *the launch of a new train in the days of the year when there is a lot of*
26 442 *passengers and an extra train is used for Mashhad, here in some days of the*
27 443 *year when the number of patients is high, extra services (such as a 24-hours*
28 444 *clinic) should be provided, it is expected that the situation will be very good*
29 445 *(fine). In the clinic, it can be said to the patients that if we cannot visit them in*
30 446 *this morning, we can visit them in the evening.” (P9)*

31 447 Another interviewee believed that, first and foremost, we had to conduct studies to determine the
32 448 proportion of visits and referrals and then set up a specialized clinic, and the managers had to
33 449 pay attention to conducting such studies:

34 450 *“Taking turns in the clinics should be strengthened. There is a need to study in*
35 451 *this regard, for example, how many neurosurgery patients have referred to the*
36 452 *clinic. The management of night clinics should be given to the new graduates*
37 453 *and they will also welcome it.” (P10)*

38 454 **4.2. Improving the quality of services in other military hospitals**

39 455 One of the ways to avoid referring to the EDs is to improve the quality of care provided by other
40 456 military healthcare centers and hospitals, to which the interviewees referred. Of course, this
41 457 solution can reduce the NU visits in the long run.

42 458 **4.3. Strengthening the para-clinical departments to perform the diagnostic procedures**

43 459 Strengthening the clinic to perform diagnostic procedures and not referring patients to the EDs
44 460 for performing such procedures is a solution that the interviewees referred to:
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3 462 *“The para-clinical system should be strengthened and all diagnostic*
4 463 *procedures, such as sonography, and etc., should perform. Providing services*
5 464 *should be more in order to make patients and the clinic comfortable and the*
6 465 *para-clinical system shouldn't refer patients to the hospital itself. Para-clinical*
7 466 *system should be strengthened in terms of time, number of visits and*
8 467 *personnel.” (P8)*

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10 468 Another interviewee mentioned a successful experience in this regard:

11 469 *“We have had a successful experience, i.e. setting up the wound clinic which*
12 470 *has been very successful and patients with bedsore, diabetics, and etc. have*
13 471 *been visited in it, and since establishing this clinic, NU visits to the ED have*
14 472 *significantly been decreased.” (P10)*

15 473 **4.4. Strengthening the referral system**

16 474 Justifying and rationalizing the referrals from the clinic to the ED is a solution, to which the
17 475 interviewees referred:

18 476 *“Referrals from the clinic to the ED should be logical, and this depends on the*
19 477 *patient's culture.” (P8)*

20 478 In addition, the referral system and family physician plan should also be implemented in the
21 479 country. In this case, it can be expected that NU cases are easily managed by the family physician
22 480 and the NU referrals to the specialized centers as well as the EDs will be prevented.

23 481 **Discussion:**

24 482 This study showed that NU visits to the EDs had several causes and there was not only one factor
25 483 affecting such visits. The causes identified included convenient access, financial incentives for
26 484 EMSs, creating wrong and false culture and norms by some healthcare centers, lack of
27 485 knowledge, inappropriate referrals, willing to pull strings, higher priority of the EDs for
28 486 hospitalization, receiving rapid care, overcrowding in other hospital departments, well-equipped
29 487 EDs, overestimating the urgency of the condition, and low costs.

30 488 Also, the results showed that NU visits had negative consequences, including patients and
31 489 employees' dissatisfaction, overcrowding and the increases in the workload of the EDs, disruption
32 490 to the delivery of care to USU patients, reductions in the efficiency and effectiveness of
33 491 employees, ED employees' fatigue and burnout, unreasonable expectation of receiving elective
34 492 care, imposing financial burdens, conflict and violence, and increased medical errors.

35 493 Moreover, the solutions provided by the interviewees were categorized into four groups of
36 494 regulatory, awareness raising plans, payment mechanism reforms, and organizational and
37 495 management initiatives.

38 496 The convenient access to the EDs and the existence of the EDs equipped with advanced facilities,
39 497 along with the provision of high quality services, are some reasons for NU visits to the EDs, which
40 498 have well been addressed by the results of other studies (17, 18). In some studies, the lack of
41 499 access to the family physicians has been reported as a reason for NU visits to the EDs (19, 20).
42 500 This is despite the fact that the history of implementing the family physician plan in Iran is more
43 501 than 10 years ago and, unfortunately, this plan has not yet been implemented across the country
44 502 for several reasons. One of the main reasons to failure in the implementation is the changes in
45 503 the senior management level of the Ministry of Health and Medical Education (MOHME). Because
46 504 all health ministers have been medical specialists and have had no experience in the field of
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3 506 health policy and management and, therefore, they have not realized the importance of family
4 507 physician plan, and in their four-year period, they often go through the process of orientation in
5 508 the first three years and most of them in the fourth year realize the importance of this plan. It is
6 509 worth noting that in only one year before the end of their tenure, they cannot do anything and the
7 510 plan remains undecided. However, the role of financial incentives for some medical specialists
8 511 and subspecialist in the failure should not be overlooked.

9 512 Having financial incentives by the EMSs was an important cause, to which the interviewees
10 513 referred. In 1991, the fee-for-service payment policy was proposed by Minister of Health and
11 514 approved by cabinet (21). The evidence showed that this policy has negative consequences,
12 515 including having financial incentives for the provision of more services and the admission of more
13 516 patients and, consequently, the imposition of additional financial burdens on the health system.
14 517 The negative effects of this plan on the EDs are also evident and one of these negative effects is
15 518 the admission of NU patients.

16 519 Changing the mechanism of payment to the physicians and disconnecting the financial
17 520 relationships between the physicians' income and patients' admission should be paid attention by
18 521 the healthcare managers and policymakers. The fee-for-service plan has had negative effects not
19 522 only on the behavior of physicians, but also on the behavior of private centers, so that the patients
20 523 in the private centers are exposed to the variety of healthcare services and procedures, and this
21 524 leads to creating a false and inappropriate culture in patients so that they expect to receive
22 525 unnecessary healthcare services in the public hospitals. Therefore, in addition to monitoring the
23 526 physicians' behavior, the private centers should also be monitored and evaluated in order to
24 527 prevent their profiteering.

25 528 The lack of patients' knowledge and awareness of the urgent conditions for referring to the EDs
26 529 was a cause the interviewees referred to. This has also been confirmed by the results of other
27 530 studies (22-26). The design and implementation of awareness raising plans in the EDs as well as
28 531 in the mass media, schools and universities, social networks, clinics, and healthcare centers can
29 532 help promote the knowledge and awareness of the patients and the community.

30 533 The inappropriate referrals by the clinic physicians, secretaries, and guardians have also effects
31 534 on the patients' NU visits. The results of other studies have also confirmed the inappropriate and
32 535 NU referrals by physicians (25, 27, 28) and others (29). To overcome such referrals, a
33 536 combination of awareness raising plans to physicians and other healthcare employees',
34 537 delegation to the triage nurses and EMSs, creating the culture of accountability among physicians,
35 538 and setting rules to prevent NU visits should be considered. Some referrals for admission to the
36 539 EDs are also made by people who want to use kinship relationships and willing to pull strings.
37 540 Taking punitive measures can be effective for overcoming this problem.

38 541 The higher priority of the EDs in order to use their temporary beds for admission to the hospital
39 542 inpatient department is one of the causes for NU visits. To the best of our knowledge as well as
40 543 literature search, we did not find studies to address such problems. Inappropriate uses of EDs
41 544 beds until the related beds in hospital inpatient department are empty can lead to negative
42 545 consequences for the patients and also the financial burdens on the health system as well as
43 546 health insurance systems. Also, such uses of EDs beds are an abuse of health facilities and
44 547 resources, it requires serious actions from healthcare managers and policy makers.

45 548 Moreover, according to the results of the present study, one of the reasons for referring to the
46 549 EDs was the low costs for patients. This is in line with the results of other studies (30, 31). It is

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3 550 recommended to receive higher fees from inappropriate and NU patients referring to the EDs in
4 551 order to prevent NU visits.

5 552 The overcrowding in other healthcare centers, such as the clinics and physicians' offices,
6 553 encourages patients to make NU visits to the EDs for receiving faster care, which is confirmed by
7 554 other studies conducted in Iran (30), Turkey (32), Jordan (33), France (34), and the United States
8 555 (35).

9 556 This study showed that patients' exaggeration of the severity of their illness in order to being
10 557 admitted is one of the causes for NU visits to the EDs. The results of other studies are also similar
11 558 to this result (36, 37). This problem can be solved by educating physicians, triage nurses and
12 559 patients and caregivers, and enhancing public awareness. Also, in the awareness raising plans,
13 560 the negative effects of NU visits should well be addressed, so that patients become aware of the
14 561 negative effects of their NU visits, which this can act as a factor in reducing NU visits.

15 562 Designing and implementing clinical guidelines in the EDS is one of the issues that unfortunately
16 563 have not been paid special attention in Iran, and most physicians are reluctant to use available
17 564 guidelines. There is also little willingness to design and implement such guidelines at the national
18 565 level and among health policy makers.

19 566 The existence of the EDs with advanced equipment, along with the provision of high quality
20 567 services are some reasons encouraging patients to make NU visits. In other words, patients prefer
21 568 going to a well-equipped center to receive required care to referring to and wandering in other
22 569 centers. This has also been confirmed by the results of other studies (38). Strengthening the para-
23 570 clinical departments to perform all diagnostic procedures can reduce the number of NU visits.
24 571 Additionally, by conducting needs assessment studies and determining the importance of setting
25 572 up 24-hour and boarding clinics, such clinics can be set up for some specialties.

26 573 Strengthening the referral system and improving the quality of services provided by other centers
27 574 can also help control and reduce NU visits in the long run.

28 575 It is suggested to conduct other studies in order to examine how to apply incentive and punitive
29 576 rules, improve the payment mechanisms to the physicians, develop patients and providers'
30 577 awareness raising plans, and identify factors affecting the overcrowding in health centers and
31 578 EDs.

32 579 This study has been conducted as the first qualitative study in Iran determining the causes for
33 580 and consequences of NU visits, as well as the possible solutions for preventing such visits, which
34 581 are the strengths of the present study. In this study, both the EMSs and nurses, who had several
35 582 years of work experience in the ED, were interviewed.

36 583 One of the limitations of this study was the lack of conducting interviews with patients who had
37 584 come to the ED. It is worth noting that in a prospective study, we explored the causes for NU visits
38 585 from the patients' perspectives. However, carrying out an in-depth qualitative study to determine
39 586 the patients' perspectives is necessary. Another limitation of the current study was the inability to
40 587 digitally record interviews due to the opposition of the ED supervisor and, therefore, it was tried
41 588 to overcome this limitation by taking notes during interviews.

42 589
43 590 **Conclusion:**
44 591 NU visits to the EDs have negative consequences for patients, providers, and the health system.
45 592 Such visits have several causes, which were well addressed in this study. It is suggested that
46 593 health policy makers design and implement a combination of solutions categorized into four

594 groups of regulatory plans, awareness raising plans, payment mechanism reforms, and
595 organizational and management initiatives. Last but not least, there is no studies carried out in
596 Iran on the solutions for NU visits to the EDs, and little attention has been paid by researchers.
597 This per se has led to the lack of producing evidences for informed policy making on the
598 magnitude of the dilemma and their associated factors.

599

600 **Author Contributions**

601 SMM was responsible for conception, design, implementation, analysis, drafting the manuscript
602 and supervision of the whole process of this study. MB is the principal researcher, who was
603 involved in conception, development, implementation, data collection, analysis, and writing of
604 the manuscript. ET and RR were responsible for intellectual development of the manuscript. All
605 authors read and approved the final manuscript.

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607 Not Applicable.

608 **Competing interests**

609 The author declares that she has no competing interests.

610 **Data sharing statement**

611 Data are available and can be accessed by contacting SMM.

612

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FIGURES' LEGEND

Figure 1. Themes of causes for and consequences of NU visits

Figure 2. The possible solutions for preventing and controlling of NU visits to EDs

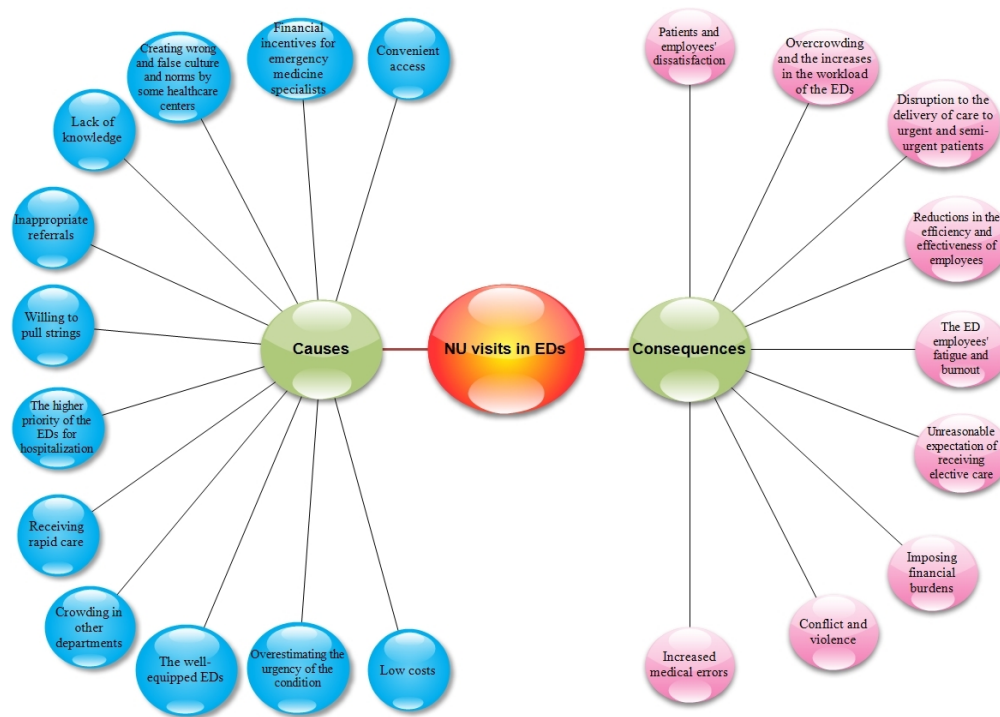


Figure 1. Themes of causes for and consequences of NU visits

308x220mm (96 x 96 DPI)

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Figure 2. The possible solutions for preventing and controlling of NU visits to EDs

293x220mm (96 x 96 DPI)

Standards for Reporting Qualitative Research (SRQR)*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

Title and abstract

<p>Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended</p>	2
<p>Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions</p>	2

Introduction

<p>Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	2
<p>Purpose or research question - Purpose of the study and specific objectives or questions</p>	3

Methods

<p>Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**</p>	3
<p>Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability</p>	3
<p>Context - Setting/site and salient contextual factors; rationale**</p>	3
<p>Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**</p>	3
<p>Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues</p>	4
<p>Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**</p>	3

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2	Data collection instruments and technologies - Description of instruments (e.g.,	
3	interview guides, questionnaires) and devices (e.g., audio recorders) used for data	
4	collection; if/how the instrument(s) changed over the course of the study	3
5		
6	Units of study - Number and relevant characteristics of participants, documents,	
7	or events included in the study; level of participation (could be reported in results)	3
8		
9	Data processing - Methods for processing data prior to and during analysis,	
10	including transcription, data entry, data management and security, verification of	
11	data integrity, data coding, and anonymization/de-identification of excerpts	3
12		
13	Data analysis - Process by which inferences, themes, etc., were identified and	
14	developed, including the researchers involved in data analysis; usually references a	
15	specific paradigm or approach; rationale**	3
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17	Techniques to enhance trustworthiness - Techniques to enhance trustworthiness	
18	and credibility of data analysis (e.g., member checking, audit trail, triangulation);	
19	rationale**	3
20		

Results/findings

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23	Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and	
24	themes); might include development of a theory or model, or integration with	
25	prior research or theory	4
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27	Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts,	
28	photographs) to substantiate analytic findings	4-12
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Discussion

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32	Integration with prior work, implications, transferability, and contribution(s) to	
33	the field - Short summary of main findings; explanation of how findings and	
34	conclusions connect to, support, elaborate on, or challenge conclusions of earlier	
35	scholarship; discussion of scope of application/generalizability; identification of	
36	unique contribution(s) to scholarship in a discipline or field	12-14
37		
38	Limitations - Trustworthiness and limitations of findings	14
39		

Other

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42	Conflicts of interest - Potential sources of influence or perceived influence on	
43	study conduct and conclusions; how these were managed	15
44		
45	Funding - Sources of funding and other support; role of funders in data collection,	
46	interpretation, and reporting	15
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*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

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**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
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Title Page

Non-urgent visits to emergency departments: A qualitative study in Iran exploring causes, consequences, and solutions

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27 **Non-urgent visits to emergency departments: A qualitative study in Iran exploring** 28 **causes, consequences, and solutions**

31 **Abstract**

32 **Objective:** To explore the causes of, consequences of, and solutions for non-urgent (NU) visits
33 to emergency departments (EDs) from the healthcare providers' viewpoints.

34 **Design:** It was a qualitative descriptive study conducted using in-depth, open-ended, semi-
35 structured interviews and inductive content analysis, theoretically informed by the
36 phenomenological approach.

37 **Setting:** A territory, teaching, and military hospital in Iran.

38 **Participants:** Healthcare providers including nurses, emergency medicine specialists (EMs),
39 and one emergency medicine resident.

40 **Results:** Twelve themes of causes of, nine themes of consequences of, and four solutions for NU
41 visits to the EDs were identified. The causes included convenient access, financial incentives for
42 EMs, creating wrong and false culture and norms by some healthcare centers, lack of
43 knowledge, inappropriate referrals, willing to pull strings, the higher priority of the EDs for
44 hospitalization, receiving rapid care, overcrowding in other hospital departments, well-equipped
45 EDs, overestimating the urgency of the condition, and low costs. The consequences were patients
46 and employees' dissatisfaction, overcrowding and the increases in the workload of the EDs,
47 disruption to the delivery of care to urgent and semi-urgent (USU) patients, reductions in the
48 efficiency and effectiveness of employees, ED employees' fatigue and burnout, unreasonable
49 expectation of receiving elective care, imposing financial burdens, conflict and violence, and
50 increased medical errors. The possible solutions for controlling and preventing the NU visits
51 included regulatory plans, awareness raising plans, payment mechanism reforms, and
52 organizational arrangements.

53 **Conclusion:** We highlighted the need for special attention to the appropriate use of EDs in Iran
54 as a low-and-middle income country. According to the complexity nature of EDs and in order to
55 control and prevent the NU visits, it is suggested that policy makers should design and implement
56 a combination of possible solutions.

58 **Strengths and limitations of this study**

- 59 1. This study is the first study to qualitatively explore the causes of, consequences of, and
60 possible solutions for NU visits in Iran and other low-and-middle income countries
61 (LMICs).
- 62 2. Semi-structured, in-depth, and open-ended interviews with key informants including
63 EMs, nurses, and an emergency medicine resident allowed us to gather the data from
64 different perspectives.
- 65 3. This study did not include patients and, therefore, did not gain the patients' perspective on
66 the NU causes and consequences.

68 **Introduction:**

69 Emergency departments (EDs) are designed to provide rapid, high-quality, continuously
70 accessible, and unscheduled care for emergency cases (1, 2). It means that EDs are not ideal

place for non-urgent (NU) conditions (3). Patients with the NU visits are those patients who do not have life-threatening problems, do not require rapid care, and their care can be safely delayed (4), and this delay would not increase the likelihood of adverse outcomes (5). It is estimated that about one-third of patients who come to EDs have NU problems which can potentially be addressed by the outpatient departments, primary care settings, and walk-in centers (6, 7). Some studies have reported even up to half of all visits to EDs as NU visits, and these differences in various studies can be due to the methodologies used to define NU visits (8). In the recent years, the use of EDs by NU patients has been reported globally (6, 9-12). The use of EDs for receiving NU care have potentially negative consequences, including crowding, increased costs, poor health outcomes, lack of continuity of care, timely urgent care for urgent and semi-urgent (USU) patients, and misdiagnoses and mistreatment (13-15).

The causes of NU conditions are not clearly understood (16), especially in the low and middle income countries (LMICs). To the best of our knowledge, there is no comprehensive study to identify the causes of, consequences of, and possible solutions for that problem in Iran as a Low-and-middle income country. This study was conducted to determine the causes of, consequences of, and solutions for NU visits to EDs from the providers' viewpoints.

Methods

Design

Using a qualitative descriptive design (17), we conducted in-depth, open-ended, semi-structured, and face-to-face interviews, informed by the theoretical perspective of the phenomenological approach to explore experiences and perceptions of physicians and nurses working in an ED. The qualitative interviews are particularly useful for exploring stakeholders' viewpoints, because they give respondents the opportunities for discussing factors that the researchers may not have anticipated (18). Choosing the face-to-face interview design ensured that the researchers could be confident that they had discussed the information effectively. The study protocol, methods and materials, and interview procedures were reviewed and confirmed by the Research Committee of Baqiyatallah University of Medical Sciences (BUMS). The triage process was conducted by a special triage nurse using the Canadian Triage and Acuity Scale (CTAS), in which the visits of patients classified into the levels 4 and 5 were considered as NU visits.

Setting, recruitment, and sampling

The studied hospital was a territory, military, and teaching hospital with 700 available beds, which was one of the largest hospitals in Tehran, the capital of Iran. Its accreditation grade was the one-Excellent, according to the latest national accreditation process performed by the Iranian Ministry of Health and Medical Education (MOHME). Its ED provided 24-hour emergency care for all patients, and had successfully run an emergency medicine residency program. During each shift, there were two Emergency Medicine specialists (EMSs), 10 to 15 nurses, and 4 to 5 nurse's aide in this ED. The researchers used a combination of snowball and purposeful sampling methods to recruit key informants from the healthcare providers working in the ED. The following key informants were interviewed: nurses working in the ED (n=8); EMSs (n=2), and an emergency medicine resident.

Data collection

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3 114 The potential key informants identified in the ED were invited to participate in the interviews on
4 115 the aim of the study. Verbal informed consent was obtained from all informants participated in this
5 116 study and they were assured of the confidentiality of their responses. The researchers asked the
6 117 key informants about their viewpoints on the causes of, consequences of, and possible solutions
7 118 for NU visits in order to implement appropriate and effective reforms. Further questions were
8 119 asked at the end of the interviews about the discussion process, and the researchers checked
9 120 whether all related topics had been covered. One of the researchers (SMM) interviewed the key
10 121 informants in the ED. The recruitment of new key informants continued until the thematic and data
11 122 saturation, in which additional interviews did not develop any new idea.

123 **Data analysis**

124 All interviews were recorded by the written notes and transcribed after each interview and
15 124 rechecked for assuring the accuracy, and entered into MAXQDA® software to perform qualitative
16 125 data management and analyses. Using the inductive content analysis, the researchers extracted
17 126 and organized the significant themes through internal discussion among the research team. Key
18 127 steps of analyses included as follows (19): preparing, organizing, and reporting. The data were
19 128 discussed collaboratively in three virtual meetings among the research team to ensure the
20 129 consensus on thorough and consistent coding.

21 130 In this study two criteria should be met to prove and strengthen the trustworthiness: credibility and
22 131 transferability (20). The researchers enhanced the credibility of the results through the source
23 132 triangulation by obtaining in-depth information from a wide range of key informants about the
24 133 research questions. In addition, the researchers described the study setting and context, and the
25 134 process of data collection and analyses to enhance the transferability of the findings.

26 135 **Ethical considerations**

27 136 This study was approved by the Ethics Committee of Research in Baqiyatallah University of
28 137 Medical Sciences (Ref: CH/7019/998). After giving written information about the study and its
29 138 aims to the participants, the researchers obtained verbal informed consent from all participants
30 139 before conducting the interviews.

31 140 **Patient and public involvement**

32 141 Patients and public were not involved in research design, recruitment or conduct of this study.

33 142 **Results:**

34 143 12 themes of causes of NU visits and 9 themes of their consequences were identified (Figure 1).
35 144 The causes of NU visits included: convenient access, financial incentives for EMSs, creating
36 145 wrong and false culture and norms by some healthcare centers, lack of knowledge, inappropriate
37 146 referrals, willing to pull strings, the higher priority of the EDs for hospitalization, receiving rapid
38 147 care, overcrowding in other hospital departments, well-equipped EDs, overestimating the urgency
39 148 of the condition, and low costs.

40 149 Participants indicated that NU visits had some negative consequences for the EDs, including
41 150 patients and employees' dissatisfaction, overcrowding and the increases in the workload of the
42 151 EDs, disruption to the delivery of care to USU patients, reductions in the efficiency and
43 152 effectiveness of employees, ED employees' fatigue and burnout, unreasonable expectation of
44 153 receiving elective care, imposing financial burdens, conflict and violence, and increased medical
45 154 errors.
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3 157 Possible solutions for controlling and preventing the NU visits were also categorized into four
4 158 groups, including regulatory plans, awareness raising plans, payment mechanism reforms, and
5 159 organizational arrangements (Figure 2).

6 160 The detailed descriptions of each theme are as follows:

7 161 **Causes:**

8 162 **1. Convenient access**

9 163 Because the ED is open 24/7 and provides services, patients' access to this department is
10 164 relatively better and easier than other healthcare service centers. A convenient and easy access
11 165 to the EDs was one of the causes that the interviewees mentioned. One of the interviewees said:

12 166 *"The mentality of the entire community is that access to the ED is easier than*
13 167 *other healthcare centers and it can make their admission easier." (P1, a triage*
14 168 *nurse)*

15 169 Another interviewee acknowledged that:

16 170 *"Emergency departments are open all the time; however, other health centers*
17 171 *have time limits." (P8, a nurse)*

18 172 **2. Financial incentives for emergency medicine specialists (EMSs)**

19 173 Because the EMSs receive the fee-for-service payment for admitting each patient to the ED, one
20 174 of the causes the interviewees stated as a factor affecting the admission of NU patients was the
21 175 EMSs' financial incentives. In other words, there is a direct financial relationship between the
22 176 patient's admission to the ED and the increases in the EMSs' income in Iran. One of the
23 177 interviewees said in this regard:

24 178 *"There is a financial relationship between the number of patients admitted and*
25 179 *the specialist's fee for service payment. There are some attending physicians*
26 180 *whom the EMSs in the screening room have been their old medical students.*
27 181 *One day, one of these EMSs in the screening room showed me a text message*
28 182 *received from his attending physician who was in the ED in that day, in which*
29 183 *he had asked the EMSs to let patients enter the ED." (P10, a nurse)*

30 184 **3. Creating wrong and false culture and norms by some healthcare centers**

31 185 Patients' previous referrals to some healthcare centers, especially private centers, have a
32 186 significant effect on their current NU visits to the EDs, so that patients referring to the private
33 187 centers to receive services are faced with receiving unnecessary services, which is due to the
34 188 profiteering look of some hospitals and physicians to the patients:

35 189 *"Private hospitals are encouraging this. Because when patients come to the*
36 190 *EDs of private hospitals to receive services, they prescribe a number of*
37 191 *unnecessary procedures for them and create this mentality in the patients that*
38 192 *the EDs can do so and provide any services. As a result, a negative attitude*
39 193 *and mentality forms in the patients, and when they go to the public hospitals,*
40 194 *they expect to receive similar services to the private hospitals." (P2, an EMS)*

41 195 **4. Lack of knowledge**

42 196 Lack of patients' knowledge and awareness of the emergency and urgent conditions affects the
43 197 NU visits to the EDs. This is due to the lack of education and training by the mass media and the
44 198 formation of a false culture. One of the interviewees considered it as a main factor:

199 *"The main factor is the knowledge and culture of our people and they do not*
 200 *have adequate knowledge, and the mass media have not also provided*
 201 *enough information for them about this issue."* (P2, an EMS).

202 However, another interviewee believed that:

203 *"A small percentage of patients do not know that they are urgent or non-urgent."*
 204 *(P5, an EMS resident)*

205 Also, the lack of awareness of and familiarity with the clinic can be a cause. One of the
 206 interviewees stated that:

207 *"People are not aware of some parts and departments such as clinics."* (P11,
 208 *a triage nurse)*

209 **5. Inappropriate referrals**

210 Referring the NU patients to the EDs by the clinic physicians, either verbally or in writing, for
 211 admission is commonplace, to which most of the participants referred. Some physicians who do
 212 not have beds in the hospital are often not responsible and confine themselves to receive a sheet
 213 of the patient's insurance notebook and refer them to the EDs. It should be noted that this is rooted
 214 in some physicians' profiteering, so that the physician refers the patients to the ED with the aim
 215 of not losing them. Because physicians are not willing to lose their patients and urge patients to
 216 go to their private offices or to a private hospital where they are working there for later visits, they
 217 refer the patients to the EDs. One of the interviewees spoke more clearly and said:

218 *"We have had a lot of patients, to whom at the same time the physician has*
 219 *given two letters: one for the hospital admissions officer and another for the*
 220 *ED. The physician also tells the patient: "go first to the hospital admissions*
 221 *officer and if he doesn't arrange a hospital appointment for you, then go to the*
 222 *ED with another letter."* (P10, a nurse)

223 It should be noted that inappropriate referrals to the EDs are not only by physicians, some
 224 hospitals also refer the patients to the EDs by an ambulance without coordination. Moreover, non-
 225 professional people, such as the physicians' secretaries and the security guards, may also advise
 226 patients to go to the EDs.

227 The role of non-professional people in the patients' NU visits to the EDs is also important:

228 *"The patients are referred badly. Non-professional people, such as secretaries and*
 229 *security guards, refer patients to this department. We have patients from towns who visit*
 230 *the clinic and because a limited number of patients can be visited in the clinic, some non-*
 231 *professional employees tell them "if your condition is urgent, go to the emergency*
 232 *department" in order that the patients do not disturb them."* (P9, a triage nurse)

233 **6. Willing to pull strings**

234 Having kinship relationships and willing to pull strings was one of the causes that the interviewees
 235 referred to:

236 *"We had a patient which had come to the ED and said: "I'm a close friend of*
 237 *Mr. X and this has been said to me to go to the ED and its personnel deal with*
 238 *your illness faster."* (P9, a triage nurse).

239 The introduction of some of the hospital units was also a cause one of the interviewees
 240 mentioned:

241 *"Having kinship relationships is important. For example, they bring a letter from*
 242 *the hospital's technical officer and other managers for admission to the ED. The*

243 *monitoring and evaluation office [in this hospital] also say to allow the patient to*
244 *be admitted to the ED until the evening, then go to the hospital ward." (P10, a*
245 *nurse)*

7. The higher priority of the EDs for hospitalization

247 Because the EDs have a higher priority, compared with other hospital departments e.g. inpatient
248 admissions unit and clinics, for admitting patients and referring them to inpatient departments, the
249 patients are more likely to go to the EDs to be admitted to the hospital and remain in them until
250 the beds available in the inpatient departments become empty. In other words, patients use the
251 EDs to remain in the hospital until a bed in the hospital inpatient department becomes empty:

252 *"Some NU patients use the ED until a bed in an inpatient department becomes*
253 *empty." (P4, a nurse)*

254 Another interviewee also pointed out that:

255 *"In addition to time justification, the emergency department has a different priority to*
256 *admittance, it has priority over other hospital wards, and the ED patients have higher*
257 *priority to be admitted to other hospital wards." (P8, a nurse)*

8. Receiving rapid care

259 Due to the nature of the EDs, the provision of the diagnostic and therapeutic services is of high
260 speed. This was not neglected by the interviewees and they acknowledged that the faster delivery
261 of services is a reason for NU visits. According to one interviewee:

262 *"The patients come to the ED to receive services and consultations faster; for*
263 *example, if we ourselves (the personnel) want to make a rheumatology*
264 *appointment, it will take about one month; but for the patients referring to the*
265 *ED, it will take up to the very next day." (P4, a nurse)*

266 Another interviewee pointed out that:

267 *"The slow speed of the clinic's work is a cause of visiting the ED. But in the ED,*
268 *the total speed of providing services, such as the lung consultation, is high."*
269 *(P10, a nurse)*

9. Overcrowding in other departments

271 Patients prefer to go to the EDs to receive services when some departments and units such as
272 clinics and hospital admissions unit, etc. are overcrowded. The overcrowding in the clinics
273 wanders the patients and they inevitably go to the EDs for receiving their required services. It
274 should be noted that because the hospital is famous and its services are of high quality, patients
275 from other cities also come to this hospital:

276 *"The departments and clinics are overcrowded, and as the patients have*
277 *usually had a long journey, therefore, they choose the ED to receive services."*
278 *(P5, an EMS resident)*

10. The well-equipped EDs

280 Having all the diagnostic facilities, as well as skilled personnel in the EDs was one of the reasons
281 that the interviewees referred to:

282 *"In addition to the emergency medicine specialists, other specialists are*
283 *available in this department." (P6, a nurse)*

284 One of the interviewees mentioned this with an example:

285 *"The focus on patients is more in the ED, in which all diagnostic groups and*
286 *facilities are available. But if patients go to a physician's office and he/she*

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3 287 requests a CT scan for them, they will go to the CT Scan center, and after
4 288 performing the CT Scan, if the head of CT Scan center writes below the report
5 289 sheet that performing the MRI is also required, the patients should go through
6 290 another process to perform the MRI. However, in the ED, the process is not
7 291 so. In general, the patient is assured that the physicians, nurses and guides,
8 292 as well as all required facilities are available in the ED." (P8, a nurse)

11. Overestimating the urgency of the condition

10 293
11 294 Some patients use several ways to be admitted to the EDs. One of the most unconventional and
12 295 unwise ways used by patients for being admitted to the EDs is to exaggerate the severity of their
13 296 illness. This was well expressed by the interviewees:

14 297 "Some of the patients exaggerate their illnesses and show their condition and
15 298 illness worse and more urgent in order to be admitted to the ED." (P5, an EMS
16 299 resident)

12. Low costs

19 300
20 301 Because all inpatient services are free of charge for patients, they will endeavor to be hospitalized
21 302 in any way to reduce considerably their costs. In other words, as soon as the patient's medical
22 303 record is set, the costs of treatment will be free. Therefore, one of the reasons for NU patients to
23 304 go to the EDs is to try to pay the lowest possible costs:

24 305 "To pay less, their costs will be free of charge if they are admitted to the
25 306 hospital. But the costs of outpatient services are not free of charge." (P6, a
26 307 nurse)

28 308 According to another interviewee:

29 309 "Because of being insured, they usually come to the ED; because as soon as the
30 310 patient's record is set, the costs become free." (P8, a nurse)

Consequences:

1. Patients and employees' dissatisfaction

33 312
34 313
35 314 NU visits to the EDs cause both patients and service providers' dissatisfaction. Slowing down the
36 315 process of providing services in EDs will lead to the dissatisfaction in patients due to NU visits
37 316 and a feeling of wandering by them. Also, other patients with USU conditions also feel dissatisfied
38 317 with the ED's services due to the lack of timely delivery of services in EDs. One of the interviewees
39 318 mentioned that:

40 319 "The satisfaction decreases." (P5, an EMS resident)

41 320 In addition, the problems caused by overcrowding and repeated protests by patients also lead to
42 321 dissatisfaction among the personnel and have negative effects on them. One of the interviewees
43 322 acknowledged that:

44 323 "The NU patients themselves become pessimistic about the system because
45 324 they think that they are wandering and circular. If they are not admitted to the
46 325 ED, they say that they have been disrespected, and they protest to the hospital
47 326 manager." (P9, a triage nurse)

2. Overcrowding and the increases in the workload of the EDs

48 327
49 328 The majority of interviewees believed that with an increase in NU visits to the EDs, it was expected
50 329 that these departments would be busy and overcrowded and the workload would increase:

330 *"This has a negative effect on the works of the ED, and it can cause to slow*
 331 *down work and duties." (P6, a nurse)*

332 Another interviewee believed that:

333 *"It causes the unreasonable crowding and disrupts the correct triage." (P8, a*
 334 *nurse)*

3. Disruption to the delivery of care to urgent and semi-urgent (USU) patients

337 The interviewees believed that NU visits to the EDs would impede the provision of services to
 338 the truly urgent patients and patients requiring urgent services. This is most often due to the
 339 lack of knowledge and awareness of NU patients who have not understood that unnecessary
 340 visits can lead to a risk for other patients with urgent conditions. Also, if NU patients have fewer
 341 visits, the employees will have enough time to provide emergency services:

342 *"The urgent patients are neglected, but if the department isn't crowded, the*
 343 *patients' work is getting faster and they will receive services faster. In this ED,*
 344 *there was a cardiovascular patient for whom, because the department wasn't*
 345 *crowded, we got an electrocardiogram once, in which there was not any*
 346 *problem, and when again we did it, we realized that the patient was Vtac and*
 347 *the patient was immediately resuscitated; but if this department was*
 348 *overcrowded, there was no way to save the patient's life. Because of the*
 349 *overcrowding, we had a patient on whom we did not focus and the CPR was*
 350 *required for him and he didn't survive." (P4, a nurse)*

351 An interviewee explicitly pointed out that:

352 *"If we want to admit the non-urgent patients, we have oppressed the urgent patients."*
 353 *(P9, a triage nurse)*

354 Another interviewee said with a bitter experience that:

355 *"The urgent patients who are really in need are not dealt with; we had a patient*
 356 *who was code 247 (MI), but two hours later he was taken to perform*
 357 *angiography, while his golden time was 30 minutes." (P10, a nurse)*

4. Reductions in the efficiency and effectiveness of employees

360 The interviewees believed that NU visits reduced the efficiency and effectiveness of personnel:

361 *"As an obstacle, they avoid doing good work and they can have negative*
 362 *effects on the good work of the personnel." (P1, a triage nurse)*

363 In other words, the personnel performance and proficiency will decrease in these
 364 situations:

365 *"It can reduce the nursing performance and proficiency." (P8, a nurse)*

5. The ED employees' fatigue and burnout

367 Because of the high number visits and the inevitability of personnel to provide patients with
 368 medical care services, NU visits have a negative effect on the emergency work process and will
 369 result in employees' fatigue and burnout.

370 *"It leads to tension among the personnel, because they should pay attention to*
 371 *both NU and USU patients. They have to deal with all patients." (P1, a triage*
 372 *nurse)*

373 The interviewees believed that the NU visits are associated with the personnel's fatigue
 374 and burnout:

1
2
3 375 *"They cause burnout." (P5, an EMS resident)*

4 376 **6. Unreasonable expectation of receiving elective care**

5 377 When NU patients go to the EDs and are hospitalized, this leads to an expectation of receiving
6 378 elective care. Because the patient, with admission to the ED, thinks that his condition also is
7 379 urgent and, therefore, requires several treatment procedures:

8 379 *"It leads to the unreasonable expectation for elective treatments. When these*
9 380 *patients are admitted to the ED, they ask for different treatments. For example,*
10 381 *a patient with low back pain constantly asks: "when will my MRI be performed?"*
11 382 *(P3, a nurse)*
12 383

13 384 **7. Imposing financial burdens**

14 384
15 385 Every patient admitted to the ED needs specialized staff (i.e. physicians, secretaries, nurses, and
16 386 etc.) and special equipment, while he/she could receive the necessary care in the outpatient
17 387 departments at lower costs. Therefore, NU visits impose additional financial burdens on the health
18 388 center, as well as on the insurance system.

19 388
20 389 One of the interviewees made it clearer by giving an example, as follow:

21 390 *"This causes the depreciation of the hospital equipment because of*
22 391 *inappropriate use of them. A patient had come here and a blood test (for*
23 392 *example, blood culture) had been asked for him, and then a specialist visited*
24 393 *and discharged him. It means that two hours after ordering the blood test for*
25 394 *the patient, he was discharged, while the result of the blood culture was usually*
26 395 *prepared after 48-72 hours later. Therefore, the result of this test remained*
27 396 *unused." (P10, a nurse)*

28 396
29 397 One of the interviewees stated that:

30 397
31 398 *"The NU visits can result in imposing an expense on the ED and insurance*
32 399 *organizations; any patient that is admitted to the ED needs a secretary, nurse,*
33 400 *nurse assistant, and equipment, while he/she could be treated as an*
34 401 *outpatient." (P3, a nurse)*
35 401

36 402 **8. Conflict and violence**

37 403 One of the serious risks of NU visits is the creation of tension and conflict between patients and
38 404 personnel, to which interviewees also referred. With increasing workload due to NU visits,
39 405 patients' expectations rise and also the employees cannot properly serve patients, and this
40 406 causes stress and conflict.

41 406
42 407 One of the interviewees stated that:

43 408 *"The NU visits can lead to the physical violence." (P5, an EMS resident)*

44 409 **9. Increased medical errors**

45 410 The interviewees believed that with increasing NU visits, because of providing faster patient care
46 411 and treatment, the quality of services and visits as well as the patient care would decrease. These
47 412 increase the probability of occurring medical errors due to overcrowding:

48 412
49 413 *"When the ED is overcrowded by the NU visits, because the physician wants*
50 414 *to make the system smoother, he/she spends less time on patients and wants*
51 415 *to get rid of them faster. Therefore, the direct care and direct monitoring and*
52 416 *follow-up of patients will decrease." (P8, a nurse)*
53 416

54 417
55 418 **Solutions:**

419 The interviewees proposed several solutions for preventing NU visits and referrals, which can be
420 categorized into four groups of regulatory plans, awareness raising plans, payment mechanism
421 reforms, and organizational arrangements.

422 The regulatory plans included giving authority to the triage nurses and EMSs, creating the culture
423 of accountability among physicians, effective monitoring and evaluation of healthcare centers,
424 and setting rules to prevent NU visits (applying rules against kinship relationships and pulling
425 strings).

426 The awareness raising plans solutions included increasing public and patients' awareness, and
427 increasing physicians' awareness.

428 Payment mechanism reforms solutions included removing financial incentives for admitting NU
429 patients, developing an appropriate payment system, receiving higher fees from NU patients.

430 Organizational arrangements solutions included setting up 24-hour and boarding clinics, referring
431 the patients to other military hospitals, improving the quality of services in other military hospitals,
432 strengthening the para-clinical departments to perform the diagnostic procedures, and
433 strengthening the referral system.

434 **1. Regulatory plans**

435 **1.1. Giving authority to the triage nurses and EMSs**

436 To prevent the NU visits, the interviewees believed that the triage nurses and EMSs had to be
437 authorized, so that they can properly guide and refer patients. One of the interviewees stated that:

438 *"The EMSs and nurses should be given power to refuse the NU patients'*
439 *admission."* (P6, a nurse)

440 Another interviewee believed that:

441 *"A triage nurse should be strengthened and allowed to refer the NU visits to*
442 *the clinic."* (P8, a nurse)

443 **1.2. Creating the culture of accountability among physicians**

444 Creating and developing the culture and channels of accountability among physicians for referring
445 and admitting patients to the EDs is an important approach, to which some interviewees noted.
446 These can make physicians more sensitive to the referrals to the EDs and the EMSs will also be
447 more cautious about admitting NU patients to EDs:

448 *"The accountability mechanism among physicians should be created."* (P1, a
449 *triage nurse)*

450 **1.3. Effective monitoring and evaluation (M&E) of healthcare centers**

451 In order to avoid healthcare centers profiteering which could create an inappropriate culture of
452 NU visits, interviewees stated that:

453 *"The M&E of healthcare centers in the private sector should be increased to*
454 *prevent their profiteering, because this leads to an inappropriate culture".* (P2,
455 *an EMS)*

456 **1.4. Setting rules to prevent NU visits**

457 Implementation of strong and inflexible rules to deal with pulling strings is also a way to prevent
458 NU visits. In addition, setting the new rules for dealing with and preventing NU visits was another
459 solution that the interviewees referred to:

460 *"Rules should be set to prevent such visits and encourage the prevention of*
461 *NU admissions."* (P2, an EMS)

One of the interviewees has noted well that what kind of rules is needed in order to prevent the NU visits:

"Another solution is to enforce the immutable rules for those who want to be admitted to the ED through kinship relationships." (P2, an EMS)

2. Awareness raising plans

2.1. Increasing public and patients' awareness

Most interviewees believed that people had to be aware of urgent and NU visits through promoting their awareness in the mass media, schools, social networks, as well as in the EDs:

"Information should be provided to patients, so that they are informed through the mass media. But this approach is not also used properly. For example, some TV series have been shown to the people, in which it has been shown that in the ED everything is calm and people are inspired if they go to an ED, they will be faced with such quiet environment. Therefore, people expect to have a quiet environment when they come to an ED, so that everything is in place and they are dealt with quickly." (P1, a triage nurse)

Another interviewee believed that people had to be informed about the consequences of patients' late visits, and the public had to go to the ED for receiving services at the right time:

"We need to teach people about the consequences of early and late visits for receiving services through the mass media." (P2, an EMS)

The interviewees believed that patients had to be educated:

"Culture creation (and training) should be done, so that the patient understands that the ED is not for NU patients." (P8, a nurse)

One of the interviewees said something interesting:

"Creating a culture should be over time. We tell our colleagues that don't admit such patients, and if you do this once and admit NU patients to the ED, the patients go to the ED for a lifetime and want to be admitted." (P11, a triage nurse)

2.2. Increasing physicians' awareness

Increasing physicians' awareness was one of the solutions, to which the interviewees referred. Interviewees believed that the EMSs also had to be advised to refrain from admitting NU patients to the EDs under any circumstances:

"EMSs should be justified, because they see that the ED is empty in some hours, and just for that reason they say that the department is empty and let the NU patients be admitted." (P3, a nurse)

Clinic physicians should also be trained and justified on the inappropriate referrals:

"The awareness of physicians who don't work in the ED should be increased because some of them try to get rid of patients and say them that they should refer to the ED." (P1, a triage nurse)

3. Payment mechanism reforms solutions

3.1. Removing financial incentives for admitting NU patients

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3 505 As mentioned in the Causes section, the physicians' financial incentives have effects on admitting
4 506 NU patients to the EDs. Therefore, one of the solutions provided by the interviewees (by the
5 507 nurses and not by the EMSs) was that the financial relationship between the patients' admission
6 508 and the physicians' payments had to be disconnected. Disconnecting the physicians' income from
7 509 patients' admission can also be effective in improving the quality of care provided by the
8 510 physicians. However, this should be accompanied by other financial incentives in order to prevent
9 511 the physicians from not providing essential services to the patients:

11 512 *"There should be no relationship between the physicians' income and the*
12 513 *hospital admission rate in the ED, and the financial relationship must be*
13 514 *discontinued." (P1, a triage nurse)*

15 515 **3.2. Developing an appropriate payment system**

16 516 The reform of the payment system was a solution that the interviewees referred to. Since
17 517 physicians often have a motivation for admitting patients who have NU problems because this
18 518 has no significant effect on their income, compared with those with acute conditions, and,
19 519 therefore, they prefer to admit patients with more stable conditions, which has a great effect on
20 520 the NU visits. One of the interviewees believed that:

22 521 *"The policies of a health care system should be such that patients who need*
23 522 *more care should pay more." (P2, an EMS)*

25 523 **3.3. Receiving higher fees from NU patients**

26 524 Receiving higher fees from NU visits is an important strategy that should be paid special attention
27 525 by the health policymakers. If patients come to this conclusion that receiving urgent services in
28 526 the EDs for NU conditions has higher costs than that in other healthcare centers such as clinics,
29 527 polyclinics, and etc., they will not select the EDs for receiving services. This solution, in addition
30 528 to the short-term positive effect on the number of NU visits, will also have a major effect in
31 529 reducing NU visits in the long run. One of the interviewees believed that:

33 530 *"NU patients coming to the ED should pay fees from 30% to 40% of total costs."*
34 531 *(P9, a triage nurse)*

36 532 Another interviewee believed that one of the causes of NU visits to the ED was the low
37 533 cost of providing ED services and suggested that:

38 534 *"In order to prevent the NU visits, more co-payment or co-insurance should be*
39 535 *received from the NU patients visiting the ED." (P6, a nurse).*

41 536 **4. Organizational arrangements**

42 537 **4.1. Setting up 24-hour and boarding clinics**

43 538 Setting up a 24-hour and boarding clinic for visiting patients was one of the solutions, to which
44 539 some interviewees referred:

46 540 *"The 24-hour backup centers should be set up. We have open clinics for up to*
47 541 *23 o'clock, and after that, patients who have had fun at their other hours or*
48 542 *patients who have had, for example, sore throat, gradually come to the ED."*
49 543 *(P1, a triage nurse)*

50 544 Of course, all interviewees were not agreed with the establishment of a 24-hour clinic, as one of
51 545 them stated that:

53 546 *"Specialized clinics are not justified because they are not cost-effective." (P3,*
54 547 *a nurse)*

1
2
3 548 One of the interviewees believed that in some days of the year, when the patients' visits to the
4 549 EDs were high, the specialized clinic had to be set up:

5 550 *"The clinic should be developed and more patients should be admitted. Like*
6 551 *the launch of a new train in the days of the year when there is a lot of*
7 552 *passengers and an extra train is used for Mashhad, here in some days of the*
8 553 *year when the number of patients is high, extra services (such as a 24-hours*
9 554 *clinic) should be provided, it is expected that the situation will be very good*
10 555 *(fine). In the clinic, it can be said to the patients that if we cannot visit them in*
11 556 *this morning, we can visit them in the evening."* (P9, a triage nurse)

12 557 Another interviewee believed that, first and foremost, we had to conduct studies to determine the
13 558 proportion of visits and referrals and then set up a specialized clinic, and the managers had to
14 559 pay attention to conducting such studies:

15 560 *"Taking turns in the clinics should be strengthened. There is a need to study in*
16 561 *this regard, for example, how many neurosurgery patients have referred to the*
17 562 *clinic. The management of night clinics should be given to the new graduates*
18 563 *and they will also welcome it."* (P10, a nurse)

19 564 **4.2. Improving the quality of services in other military hospitals**

20 565 One of the ways to avoid referring to the EDs is to improve the quality of care provided by other
21 566 military healthcare centers and hospitals, to which the interviewees referred. Of course, this
22 567 solution can reduce the NU visits in the long run.

23 568 **4.3. Strengthening the para-clinical departments to perform the** 24 569 **diagnostic procedures**

25 570 Strengthening the clinic to perform diagnostic procedures and not referring patients to the EDs
26 571 for performing such procedures is a solution that the interviewees referred to:

27 572 *"The para-clinical system should be strengthened and all diagnostic*
28 573 *procedures, such as sonography, and etc., should perform. Providing services*
29 574 *should be more in order to make patients and the clinic comfortable and the*
30 575 *para-clinical system shouldn't refer patients to the hospital itself. Para-clinical*
31 576 *system should be strengthened in terms of time, number of visits and*
32 577 *personnel."* (P8, a nurse)

33 578 Another interviewee mentioned a successful experience in this regard:

34 579 *"We have had a successful experience, i.e. setting up the wound clinic which*
35 580 *has been very successful and patients with bedsore, diabetics, and etc. have*
36 581 *been visited in it, and since establishing this clinic, NU visits to the ED have*
37 582 *significantly been decreased."* (P10, a nurse)

38 583 **4.4. Strengthening the referral system**

39 584 Justifying and rationalizing the referrals from the clinic to the ED is a solution, to which the
40 585 interviewees referred:

41 586 *"Referrals from the clinic to the ED should be logical, and this depends on the*
42 587 *patient's culture."* (P8, a nurse)

43 588 In addition, the referral system and family physician plan should also be implemented across the
44 589 country, where it is expected that NU cases are easily well-handled by the family physicians.

45 590 **Discussion:**

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2
3 592 This study showed that NU visits to the EDs had several causes and negative consequences.
4 593 The convenient access to the EDs and the existence of the EDs equipped with advanced facilities,
5 594 along with the provision of high quality services, are some reasons for NU visits to the EDs, which
6 595 have well been addressed by the results of other studies (21, 22). In some studies, the lack of
7 596 access to the family physicians has been reported as a reason for NU visits to the EDs (23, 24).
8 597 This is despite the fact that the history of implementing the family physician plan in Iran is more
9 598 than 10 years ago and, unfortunately, this plan has not yet been implemented across the country
10 599 for several reasons. The implementation of the family physician plan in Iran faces with some
11 600 problems, including the delays in paying to the healthcare providers, lack of effective referral
12 601 system, weaknesses of political will and executive authorities, serious weakness of coordination
13 602 between stakeholders, and lack of an effective health information system across the country (25-
14 603 28).
15 604 Having financial incentives by the EMSs was an important cause, to which the interviewees
16 605 referred. In 1991, the fee-for-service payment policy was proposed by the Minister of Health and
17 606 was approved by the Cabinet (29). The evidence showed that this policy had negative
18 607 consequences, such as having financial incentives for the provision of more services and the
19 608 admission of more patients and, consequently, the imposition of additional financial burdens on
20 609 the health system. The negative effects of this plan on the EDs are also evident, one of which can
21 610 be the admission of NU patients.
22 611 Changing the mechanism of payment to the physicians and disconnecting the financial
23 612 relationships between the physicians' income and patients' admission should be paid special
24 613 attention by the healthcare managers and policymakers. The fee-for-service plan has had
25 614 negative effects not only on the behavior of physicians, but also on the behavior of private centers,
26 615 so that the patients in the private centers are exposed to the variety of healthcare services and
27 616 procedures, and this leads to creating a false and inappropriate culture in patients so that they
28 617 expect to receive unnecessary healthcare services in the public hospitals. Therefore, in addition
29 618 to monitoring the physicians' behavior, the private centers should also be monitored and
30 619 evaluated in order to prevent their profiteering.
31 620 The lack of patients' knowledge and awareness of the urgent conditions for referring to the EDs
32 621 was a cause the interviewees referred to. This has also been confirmed by the results of other
33 622 studies (30-34). The design and implementation of awareness raising plans in the EDs as well as
34 623 in the mass media, schools and universities, social networks, clinics, and healthcare centers can
35 624 help promote the knowledge and awareness of the patients and the community.
36 625 The inappropriate referrals by the clinic physicians, secretaries, and security guards have also
37 626 effects on the patients' NU visits. The results of other studies have also confirmed the
38 627 inappropriate and NU referrals by physicians (33, 35, 36) and others (37). To overcome such
39 628 referrals, a combination of awareness raising plans for physicians and other healthcare
40 629 employees, giving authority to the triage nurses and EMSs, creating the culture of accountability
41 630 among physicians, and setting rules to prevent NU visits should be considered. Some referrals
42 631 for admission to the EDs are also made by people who want to use kinship relationships and
43 632 willing to pull strings. Taking punitive measures can be effective for overcoming this problem.
44 633 The higher priority of the EDs in order to use their temporary beds for admission to the hospital
45 634 inpatient department is one of the causes of NU visits. To the best of our knowledge as well as
46 635 literature search, we did not find studies to address such problems. Inappropriate uses of EDs

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3 636 beds until the related beds in hospital inpatient department become empty can lead to negative
4 637 consequences for the patients and also the financial burdens on the health system as well as
5 638 health insurance systems. Also, such uses of ED beds are an abuse of health facilities and
6 639 resources. It requires serious actions from healthcare managers and policy makers.

7
8 640 Moreover, according to the results of the present study, one of the reasons for referring to the
9 641 EDs was the low costs for patients. This is in line with the results of other studies (38, 39). It is
10 642 recommended to receive higher fees from inappropriate and NU patients referring to the EDs in
11 643 order to prevent NU visits.

12
13 644 The overcrowding in other healthcare centers, such as the clinics and physicians' offices,
14 645 encourages patients to make NU visits to the EDs for receiving faster care, which is confirmed by
15 646 other studies conducted in Iran (38), Turkey (40), Jordan (41), France (42), and the United States
16 647 (43).

17
18 648 This study showed that patients' exaggeration of the severity of their illness in order to being
19 649 admitted is one of the causes of NU visits to the EDs. The results of other studies are also similar
20 650 to this result (44, 45). This problem can be solved by educating physicians, triage nurses and
21 651 patients and caregivers, and enhancing public awareness. Also, in the awareness raising plans,
22 652 the negative effects of NU visits should well be addressed, so that patients become aware of the
23 653 negative effects of their NU visits, which this can act as a factor in reducing NU visits.

24
25 654 Designing and implementing clinical guidelines in the EDs is one of the issues that unfortunately
26 655 have not been paid special attention in Iran, and most physicians are reluctant to use available
27 656 guidelines. There is also little willingness to design and implement such guidelines at the national
28 657 level and among health policy makers.

29
30 658 The existence of the EDs with advanced equipment, along with the provision of high quality
31 659 services are some reasons encouraging patients to make NU visits. In other words, patients prefer
32 660 going to a well-equipped center to receive required care to referring to and wandering in other
33 661 centers. This has also been confirmed by the results of other studies (46). Strengthening the para-
34 662 clinical departments to perform all diagnostic procedures can reduce the number of NU visits.
35 663 Additionally, by conducting needs assessment studies and determining the importance of setting
36 664 up 24-hour and boarding clinics, such clinics can be set up for some specialties.

37
38 665 Strengthening the referral system and improving the quality of services provided by other centers
39 666 can also help control and reduce NU visits in the long run.

40
41 667 It is suggested to conduct other studies in order to examine how to apply incentive and punitive
42 668 rules, improve the payment mechanisms to the physicians, develop patients and providers'
43 669 awareness raising plans, and identify factors affecting the overcrowding in health centers and
44 670 EDs. Also, further quantitative studies should be conducted to determine the effects of NU visits
45 671 on the EDs crowding and overcrowding in the Iranian hospitals. It should be noted that we require
46 672 further studies on the frequency and causes of medical errors in the hospitals in order to prepare
47 673 annual official reports.

48
49 674 This study has been conducted as the first qualitative study in Iran determining the causes of and
50 675 consequences of NU visits, as well as the possible solutions for preventing such visits, which are
51 676 the strengths of the present study. In this study, both the EMSs and nurses, who had several
52 677 years of work experience in the ED, were interviewed.

53
54 678 One of the limitations of this study was the lack of conducting interviews with patients who had
55 679 come to the ED. It is worth noting that in a prospective study, we explored the causes of NU visits

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3 680 from the patients' perspectives. However, carrying out an in-depth qualitative study to determine
4 681 the patients' perspectives is necessary. Another limitation of the current study was the inability to
5 682 digitally record interviews due to the opposition of the ED supervisor and, therefore, it was tried
6 683 to overcome this limitation by taking notes during interviews.
7 684

685 **Conclusion:**

686 NU visits to the EDs have negative consequences for patients, providers, and the health system.
687 Such visits have several causes, which were well addressed in this study. It is suggested that
688 health policy makers design and implement a combination of solutions categorized into four
689 groups of regulatory plans, awareness raising plans, payment mechanism reforms, and
690 organizational arrangements. As a long term strategy, implementing the referral system and
691 family physician plan across the country should be considered as a national priority. Last but not
692 least, there is no study carried out in Iran on the solutions for NU visits to the EDs, and little
693 attention has been paid by researchers. This per se has led to the lack of producing sufficient
694 evidence for informed policy making on the magnitude of the dilemma and the associated factors.
695

696 **Author Contributions**

697 SMM was responsible for the conception, design, implementation, analysis, drafting the
698 manuscript and supervision of the whole process of the study. MB is the principal researcher,
699 who was involved in the conception, development, implementation, data collection, data
700 analysis, and writing the manuscript. ET and RR were responsible for the intellectual
701 development of the manuscript. All authors have read and approved the final manuscript.

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704 **Competing interests**

705 The authors have declared that no competing interests exist.

706 **Data sharing statement**

707 Data are available and can be accessed by contacting with SMM.
708

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FIGURES' LEGEND

Figure 1. Themes of causes of, and consequences of NU visits

Figure 2. The possible solutions for preventing and controlling of NU visits to EDs

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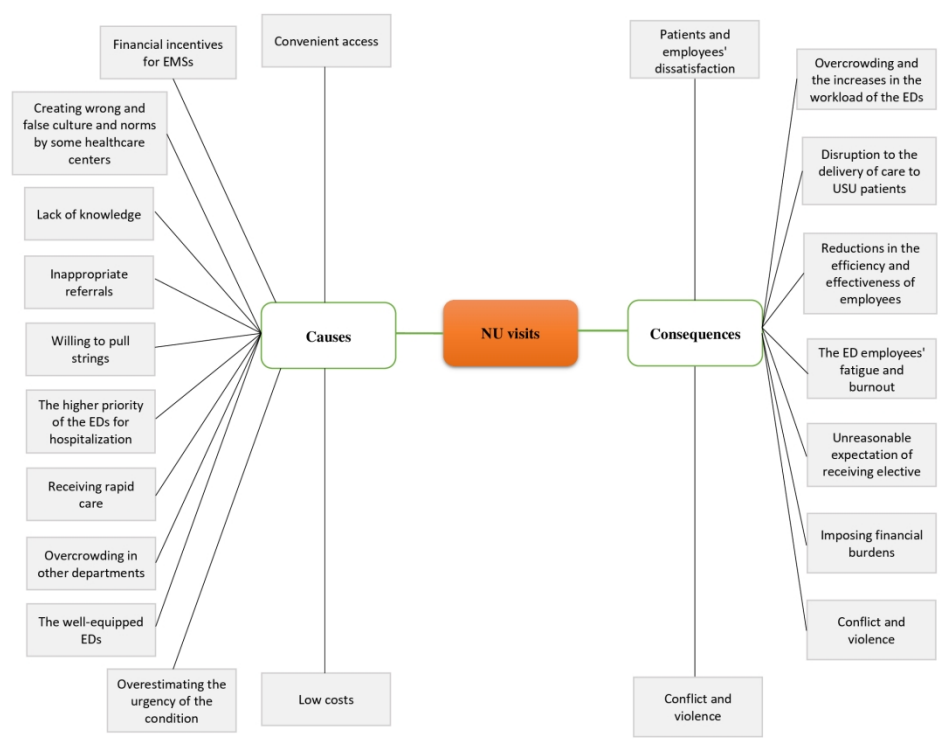


Figure 1. Themes of causes of, and consequences of NU visits
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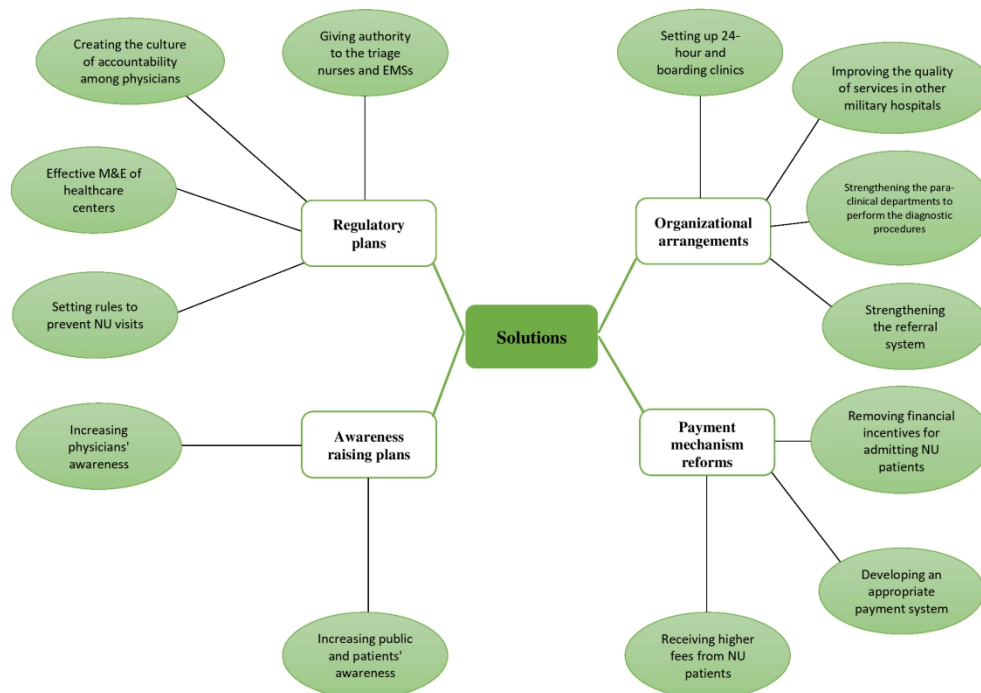


Figure 2. The possible solutions for preventing and controlling of NU visits to EDs

279x215mm (200 x 200 DPI)

Standards for Reporting Qualitative Research (SRQR)*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

Title and abstract

<p>Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended</p>	2
<p>Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions</p>	2

Introduction

<p>Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	2
<p>Purpose or research question - Purpose of the study and specific objectives or questions</p>	3

Methods

<p>Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**</p>	3
<p>Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability</p>	3
<p>Context - Setting/site and salient contextual factors; rationale**</p>	3
<p>Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**</p>	3
<p>Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues</p>	4
<p>Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**</p>	3

1 2 3 4 5	Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	3
6 7 8	Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	3
9 10 11 12	Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	3
13 14 15 16	Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	3
17 18 19 20	Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	3

Results/findings

23 24 25 26	Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	4
27 28 29	Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	4-12

Discussion

32 33 34 35 36 37	Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	12-14
38 39	Limitations - Trustworthiness and limitations of findings	14

Other

42 43 44	Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	15
45 46	Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	15

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

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**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
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Title Page**Non-urgent visits to emergency departments: A qualitative study in Iran exploring causes, consequences, and solutions****Mohammadkarim Bahadori¹, Seyyed Meysam Mousavi^{2*}, Ehsan Teymourzadeh³, Ramin Ravangard⁴**

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27 **Non-urgent visits to emergency departments: A qualitative study in Iran exploring** 28 **causes, consequences, and solutions**

31 **ABSTRACT**

32 **Objective:** To explore the causes of, consequences of, and solutions for non-urgent (NU) visits
33 to emergency departments (EDs) from the healthcare providers' viewpoints.

34 **Design:** A qualitative descriptive study conducted using in-depth, open-ended, semi-structured
35 interviews and inductive content analysis, theoretically informed by the phenomenological
36 approach.

37 **Setting:** A territory, teaching, and military hospital in Iran.

38 **Participants:** Healthcare providers including nurses, emergency medicine specialists (EMSs),
39 and an emergency medicine resident.

40 **Results:** Three overarching themes of causes of, consequences of, and four solutions for NU
41 visits to the EDs were identified. The causes included specialized ED services, demand side
42 factors, and supply side factors. The consequences has been categorized in three overarching
43 themes, including negative consequences for patients, healthcare providers, and EDs as well as
44 the health system in general. The possible solutions for preventing and controlling NU visits also
45 included regulatory plans, awareness raising plans, payment mechanism reforms, and
46 organizational arrangements.

47 **Conclusion:** We highlighted the need for special attention to the appropriate use of EDs in Iran,
48 as a low-and-middle income country. According to the complexity nature of EDs and in order to
49 control and prevent NU visits it can be suggested that policy makers should design and
50 implement a combination of possible solutions.

52 **Strengths and limitations of this study**

- 53 1. This study is the first study to qualitatively explore the causes of, consequences of, and
54 possible solutions for NU visits in Iran and other low-and-middle income countries
55 (LMICs).
- 56 2. Semi-structured, in-depth, and open-ended interviews with key informants including
57 EMSs, nurses, and an emergency medicine resident allowed us to gather data from
58 different perspectives.
- 59 3. This study did not include patients and, therefore, did not gain patients' perspective on
60 the causes and consequences of NU visits to EDs.

62 **INTRODUCTION:**

63 Emergency departments (EDs) are designed to provide rapid, high-quality, continuously
64 accessible, and unscheduled care for emergency cases (1, 2). It means that EDs are not ideal
65 place for non-urgent (NU) conditions (3). Patients with NU visits are those patients who do not
66 have life-threatening problems, do not require rapid care, and their care can be safely delayed
67 (4), and this delay would not increase the likelihood of adverse outcomes (5). It is estimated that
68 about one-third of patients who come to EDs have NU problems which can potentially be
69 addressed by the outpatient departments, primary care settings, and walk-in centers (6, 7).
70 Some studies have reported even up to half of all visits to EDs as NU visits, and these

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3 71 differences in various studies can be due to the methodologies used to define NU visits (8). In
4 72 the recent years, the use of EDs by NU patients has been reported globally (6, 9-12). The use of
5 73 EDs for receiving NU care have potentially negative consequences, including crowding,
6 74 increased costs, poor health outcomes, lack of continuity of care, timely urgent care for urgent
7 75 and semi-urgent (USU) patients, and misdiagnoses and mistreatment (13-15).

8 76 Causes of NU conditions are not clearly understood (16), especially in the low and middle
9 77 income countries (LMICs). To the best of our knowledge, there is no comprehensive study to
10 78 identify causes of, consequences of, and possible solutions for that problem in Iran, as a Low-
11 79 and-middle income country. This study was conducted to determine the causes of,
12 80 consequences of, and solutions for NU visits to EDs from the providers' viewpoints.
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16 81 17 82 **METHODS**

18 83 **Design**

19 84 Using a qualitative descriptive design (17), we conducted in-depth, open-ended, semi-
20 85 structured, and face-to-face interviews, informed by the theoretical perspective of
21 86 phenomenological approach, to explore experiences and perceptions of physicians and nurses
22 87 working in an ED. Qualitative interviews are particularly useful for exploring stakeholders'
23 88 viewpoints, because they give respondents opportunities for discussing factors that researchers
24 89 may not have anticipated (18). Choosing the face-to-face interview design ensured that
25 90 researchers could be confident that they had discussed information effectively. The study
26 91 protocol, methods and materials, and interview procedures were reviewed and confirmed by the
27 92 Research Committee of Baqiyatallah University of Medical Sciences (BUMS). The triage
28 93 process was conducted by a special triage nurse using the Canadian Triage and Acuity Scale
29 94 (CTAS), in which levels 4 and 5 of patients' visits had been considered as NU visits.
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34 96 **Setting, recruitment, and sampling**

35 97 The studied hospital was a territory, military, and teaching hospital with 700 available beds,
36 98 which was one of the largest hospitals in Tehran, the capital of Iran. Its accreditation grade was
37 99 one-Excellent, according to the latest national accreditation process performed by the Iranian
38 100 Ministry of Health and Medical Education (MOHME). Its ED provided 24-hour emergency care
39 101 for all patients, and had successfully run an emergency medicine residency program. During
40 102 each shift, there were two Emergency Medicine specialists (EMSs), 10 to 15 nurses, and 4 to 5
41 103 nurse aides in this ED. The researchers used a combination of snowball and purposeful
42 104 sampling methods to recruit key informants from the healthcare providers working in the ED.
43 105 The following key informants were interviewed: nurses working in the ED (n=8); EMSs (n=2),
44 106 and an emergency medicine resident.
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47 107 **Data collection**

48 108 The potential key informants identified in the ED were invited to participate in interviews on the
49 109 aim of the study. Verbal informed consent was obtained from all participants and they were
50 110 assured of the confidentiality of their responses. The researchers asked the key informants
51 111 about their viewpoints on the causes of, consequences of, and possible solutions for NU visits in
52 112 order to implement appropriate and effective reforms. Further questions were asked at the end
53 113 of interviews about the discussion process, and the researchers checked whether all related
54 114 topics had been covered. One of the researchers (SMM) interviewed with key informants in the
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3 115 ED. The recruitment of new key informants continued until thematic and data saturation, in
4 116 which additional interviews did not develop any new idea.

6 117 **Data analysis**

7 118 All interviews were recorded by the written notes and transcribed after each interview and
8 119 rechecked for assuring the accuracy, and entered into MAXQDA® software to perform
9 120 qualitative data management and analyses. Using the inductive content analysis, the
10 121 researchers extracted and organized significant themes through internal discussion among the
11 122 research team. Key steps of analyses included as follows (19): preparing, organizing, and
12 123 reporting. The data were discussed collaboratively in three virtual meetings among the research
13 124 team to ensure consensus on thorough and consistent coding.

14 125 In this study, two criteria had to be met in order to prove and strengthen trustworthiness:
15 126 credibility and transferability (20). The researchers enhanced credibility of results through the
16 127 source triangulation by obtaining in-depth information from a wide range of key informants about
17 128 the research questions. In addition, the researchers described the study setting and context,
18 129 and process of data collection and analyses to enhance transferability of the findings.

21 130 **Ethical considerations**

22 131 This study was approved by the Ethics Committee of Research in Baqiyatallah University of
23 132 Medical Sciences (Ref: CH/7019/998). After giving written information about the study and its
24 133 aims to the participants, the researchers obtained verbal informed consent from all participants
25 134 before conducting interviews.

27 135 **Patient and public involvement**

28 136 Patients and public were not involved in the research design, recruitment or conducting this
29 137 study.

30 138

32 139 **RESULTS:**

33 140 12 themes of causes of NU visits and 9 themes of their consequences were identified (Figure
34 141 1). Possible solutions for preventing and controlling NU visits were also categorized into four
35 142 groups, including regulatory plans, awareness raising plans, payment mechanism reforms, and
36 143 organizational arrangements (Figure 2).

37 144 The detailed descriptions of each theme are as follows:

39 145 **Causes:**

41 146 **1. Specialized ED services**

42 147 **1.1. Convenient access**

43 148 Because the ED is open 24/7 and provides healthcare services, patients' access is relatively
44 149 higher, better, and easier than outpatient departments and other healthcare centers.

45 150 *"Mentality of community is that access to EDs is easier than other healthcare*
46 151 *centers and it can make their admission easier." (P1, a triage nurse)*

47 152 *"EDs are open all the time; however, other health centers have time limits."*
48 153 *(P8, a nurse)*

50 154 **2.1. Receiving rapid care**

51 155 Due to the nature of EDs, provision of diagnostic and therapeutic services is of high speed. This
52 156 was not neglected by the participants and they acknowledged that faster delivery of care was a
53 157 reason for NU visits.

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3 158 *"The patients come to the ED to receive care and consultations faster. For*
4 159 *example, if we ourselves (the personnel) want to make a rheumatology*
5 160 *appointment, it will take about one month; but for the ED's patients, it will take*
6 161 *up to very next day." (P4, a nurse)*

7 162 *"Slow speed of the clinic's workflow is a cause of visiting the ED, while in the*
8 163 *ED, total speed of providing care, e.g. lung consultation, is high." (P10, a*
9 164 *nurse)*

10 165 **3.1. Well-equipped EDs**

11 166 Having all diagnostic facilities, as well as skilled personnel in EDs was one of the reasons that
12 167 the participants well-recognized:

13 168 *"In addition to EMSs, other specialists are available in the ED." (P6, a nurse)*

14 169 *"Focus on patients is more in the ED, in which all diagnostic groups and*
15 170 *facilities are available. But if patients go to a physician's office and he/she*
16 171 *requests a CT-Scan for them, they will go to the CT-Scan center, and after*
17 172 *performing the test, if head of CT-Scan center writes below the report sheet*
18 173 *that performing MRI is also required, the patients should go through another*
19 174 *process to perform the MRI. However, in the ED, the process is not so. In*
20 175 *general, the patient is assured that physicians, nurses and guides, as well as*
21 176 *all necessary facilities are available in the ED." (P8, a nurse)*

22 177 **4.1. Higher priority of EDs for hospitalization**

23 178 Because EDs have a higher priority for admitting patients and referring them to inpatient
24 179 departments, compared with other departments e.g. inpatient admission unit and clinics,
25 180 patients are more likely to go to EDs to be admitted to inpatient departments, and are remained
26 181 in the ED until beds in inpatient departments become empty.

27 182 *"Some NU patients use the ED until a bed in an inpatient department becomes empty."*
28 183 *(P4, a nurse)*

29 184 *"In addition to time justification, the ED has a different priority to admittance, it has*
30 185 *priority over other departments, and its patients have higher priority to be admitted to*
31 186 *other departments." (P8, a nurse)*

32 187 **2. Demand side factors**

33 188 **2.1. Lack of knowledge**

34 189 Lack of patients' knowledge and awareness of urgent conditions affects NU visits to EDs. This is
35 190 due to lack of education by mass media and formation of a false culture.

36 191 *"The main factor is the knowledge and culture of our people, since they do*
37 192 *not have adequate knowledge. The mass media have not also provided*
38 193 *enough information for them about this issue." (P2, an EMS).*

39 194 However, another interviewee believed that:

40 195 *"A small percentage of patients do not know that they are urgent or NU." (P5,*
41 196 *an EMS resident)*

42 197 Also, lack of awareness of and familiarity with main duties of clinic providing care to
43 198 NU patients can be a cause.

44 199 *"People are not aware of some departments such as clinics." (P11, a triage*
45 200 *nurse)*

2.2. Willing to pull strings

Having kinship relationships and willing to pull strings was one of the causes that participants referred to:

"We had a patient which had come to the ED and said: "I'm a close friend of Mr. X and this has been said to me to go to the ED and its personnel deal with your illness faster." (P9, a triage nurse)

The introduction of some hospital departments was also a cause:

"Having kinship relationships is important. For example, they [patients] bring a letter from the hospital's technical officer and other managers for admission to the ED. The monitoring and evaluation office [in this hospital] also say to allow the patient to be admitted until the evening and then will go to the hospital department." (P10, a nurse)

2.3. Overestimating the urgency of conditions

Some patients use several ways to be admitted to EDs. One of the most unconventional and unwise ways used by patients is to exaggerate the severity of their conditions.

"Some of the patients exaggerate their illnesses and show their condition and illness worse and more urgent in order to be admitted to the ED." (P5, an EMS resident)

3. Supply side factors

3.1. Financial incentives for emergency medicine specialists (EMSs)

Participants recognized that EMSs' fee-for-service (FFS) payment is a factor affecting the admission of NU patients, since FFS was depend on the number of patients admitted. In other words, there is a direct financial relationship between patient's admission to EDs and the increases in the EMSs' income in Iran.

"There is a financial relationship between the number of patients admitted and specialist's fee for service payment. There are some attending physicians whom the EMSs in screening room have been their old medical students. One day, one of these EMSs in the screening room showed me a text message received from his attending physician who was in the ED in that day, in which he had asked the EMSs to let patients enter the ED." (P10, a nurse)

3.2. Creating wrong culture by some healthcare centers

Patients' previous referrals to some healthcare centers, especially private centers, have a significant effect on their current NU visits to EDs, so that patients referring to the private centers to receive services are faced with receiving unnecessary services, which is due to the profiteering look of some hospitals and physicians to patients.

"Private hospitals are encouraging this. Because when patients come to EDs of private hospitals to receive care, they prescribe a number of unnecessary procedures for them and create this mentality in the patients that EDs can do so and provide any services. As a result, a negative attitude and mentality forms in the patients, and when they go to public hospitals, they expect to receive similar services to those private ones." (P2, an EMS)

3.3. Inappropriate referrals

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3 246 Referring the non-urgent patients to emergency departments by clinic physicians, either verbally
4 247 or in writing, for admission in EDs is commonplace. Some physicians who do not have beds in
5 248 the hospital are often not responsible and confine themselves to receive a sheet of the patient's
6 249 insurance notebook and refer them to the ED. It should be noted that this is rooted in some
7 250 physicians' profiteering, so that the physician refers patients to the ED with the aim of not losing
8 251 them. Because physicians are not willing to lose their patients and urge patients to go to their
9 252 private offices or to a private hospital where they are working there for later visits, they refer the
10 253 patients to the ED.

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13 254 *"We have had a lot of patients, to whom at the same time their physician has*
14 255 *given two letters: one for hospital admission officer and another for the ED.*
15 256 *The physicians also tell patients: "go first to the hospital admission officer and*
16 257 *if he/she doesn't arrange an appointment for you, then go to the ED with*
17 258 *another letter." (P10, a nurse)*

18
19 259 It should be noted that inappropriate referrals to the ED are not only by physicians and some
20 260 other hospitals also refer patients to the ED by an ambulance without coordination. Moreover,
21 261 non-professional people, e.g. physicians' secretaries and security guards, may also advise
22 262 patients to go to the ED.

23
24 263 *"The patients are referred badly. Non-professional people, such as secretaries and*
25 264 *security guards, refer patients to the ED. We have patients from other towns who visit*
26 265 *the clinic and because a limited number of patients can be visited in the clinic, some*
27 266 *non-professional employees tell them "if your condition is urgent, go to the ED" in order*
28 267 *that the patients do not disturb them." (P9, a triage nurse)*

30 268 **3.4. Overcrowding in other departments**

31 269 Crowding and overcrowding in other departments such as clinics and hospital admissions unit is
32 270 an important cause of visiting EDs for NU conditions. Overcrowding in the clinics wanders
33 271 patients and they inevitably go to the ED. It should be noted that because this hospital is famous
34 272 for its high quality services, patients from other provinces also come to the hospital.

35
36 273 *"Departments and clinics are overcrowded, and as patients have usually had*
37 274 *a long journey, therefore, they choose the ED to receive care." (P5, an EMS*
38 275 *resident)*

39 276 **3.5. Low costs**

40
41 277 Because all inpatient services are free of charge for some patients, they will endeavor to be
42 278 hospitalized in any way to reduce considerably their costs. In other words, as soon as patient's
43 279 medical record is set in inpatients departments, the costs will be free.

44 280 *"To pay less, their costs will be free of charge if they are hospitalized. But the*
45 281 *costs of outpatient services are not free of charge." (P6, a nurse)*
46 282 *Because of being insured, they usually come to the ED; because as soon as the*
47 283 *patient's record is set, the costs become free." (P8, a nurse)*

50 285 **Consequences:**

51 286 **1. Patients**

52 287 **1.1. Patients and employees' dissatisfaction**

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3 288 NU visits to EDs cause dissatisfaction in both patients and healthcare providers. Slowing down
4 289 workflow of procedures in EDs will lead to dissatisfaction in both NU and USU patients. In the
5 290 latter patients, it can be due to feeling of wandering and lack of timely delivery of care.

6 291 *"The satisfaction decreases." (P5, an EMS resident)*

7
8 292 In addition, problems caused by crowding and frequent complaints by patients also lead to
9 293 dissatisfaction among ED's personnel as well as have negative effects on their mentality.

10 294 *"NU patients themselves become pessimistic about the system because they*
11 295 *think that they are wandering and circular. If they are not admitted to the ED,*
12 296 *they say that they have been disrespected, and they complaint to hospital*
13 297 *managers." (P9, a triage nurse)*

14 298 **1.2. Increased medical errors**

15
16 299 Since speed of providing care in EDs is normally high, quality of care and focus on patients
17 300 would decrease due to increasing NU visits, which potentially increase the probability of
18 301 occurring medical errors due to crowding.

19 302 *"When the ED is crowded by NU visits, because the physician wants to make*
20 303 *the system smoother, he/she spends less time on patients and wants to get*
21 304 *rid of them faster. Therefore, direct care and monitoring and also follow-up of*
22 305 *patients will decrease." (P8, a nurse)*

23 306 **1.3. Disruption in delivery of care to urgent and semi-urgent (USU) patients**

24 307 NU visits to EDs would impede the provision of care to truly USU patients. This is most often
25 308 due to lack of knowledge and awareness of NU patients regarding increases of serious health
26 309 risks for USU patients because of unnecessary and NU visits. Also, if NU patients have fewer
27 310 visits, employees will have adequate time to provide emergency care:

28 311 *"Urgent patients are neglected, but if the department isn't crowded, the*
29 312 *patients' work is getting faster and they will receive care faster. In this ED,*
30 313 *there was a cardiovascular patient for whom, because the department wasn't*
31 314 *crowded, we got an electrocardiogram once, in which there was not any*
32 315 *problem, and when again we did it, we realized that the patient was Vtac and*
33 316 *he was immediately resuscitated; but if the ED was overcrowded, there was*
34 317 *no way to save the patient's life. Also, we had a patient on whom we did not*
35 318 *focus because of the overcrowding, and CPR was required for him, and*
36 319 *unfortunately he didn't survive." (P4, a nurse)*

37 320 *"If we want to admit NU patients, we have oppressed the urgent patients." (P9, a triage*
38 321 *nurse)*

39 322 One participant had a bitter experience:

40 323 *"The urgent patients who are really in need are not dealt with; we had a*
41 324 *patient who was code 247 (MI), but two hours later he was taken to perform*
42 325 *angiography, while his golden time was 30 minutes." (P10, a nurse)*

43 326 44 327 **2. EDs and the health system**

45 328 **2.1. Unreasonable expectation for receiving elective care**

46 329 When NU patients go to EDs and are admitted, this leads to an expectation of receiving elective
47 330 care. Because patients think that their condition also is urgent and, therefore, requires several
48 331 treatment procedures.

332 *"NU visits lead to unreasonable expectation for elective services. When these*
 333 *patients are admitted to the ED, they ask for different procedures. For*
 334 *example, a patient with low back pain constantly asks: "when will my MRI be*
 335 *performed?"*" (P3, a nurse)

2.2. Imposing financial burdens

337 Every patient admitted to EDs will require equipment and specialized staff (e.g. physicians,
 338 nurses, secretaries), while he/she could receive necessary care in outpatient departments at
 339 lower costs. Therefore, NU visits impose additional financial burdens on the healthcare center
 340 and health system in general.

341 *"NU visits cause depreciation of hospital equipment because of inappropriate*
 342 *use of them. A patient had come here and a blood test (for example, blood*
 343 *culture) had been asked for him, and then a specialist visited and discharged*
 344 *him. It means that two hours after ordering the blood test for the patient, he*
 345 *was discharged, while the result of the blood culture was usually prepared*
 346 *after 48-72 hours later. Therefore, the result of this test remained unused."*
 347 (P10, a nurse)

348 *"NU visits can result in imposing an extra costs on the ED and insurance*
 349 *organizations; any patient that is admitted to the ED needs a secretary,*
 350 *nurse, nurse assistant, and equipment, while he/she could be treated as an*
 351 *outpatient."* (P3, a nurse)

2.3. Overcrowding and increases in the EDs' workload

353 It is inevitable that EDs would be busy and overcrowded due to increases in NU visits, which
 354 potentially affect the workload of EDs:

355 *"This has a negative effect on the works of the ED, and it can cause to slow*
 356 *down work and duties."* (P6, a nurse)

357 *"It causes unreasonable crowding and disrupts the accurate triage."* (P8, a
 358 nurse)

3. Healthcare providers

3.1. ED employees' fatigue and burnout

362 Because of high number of visits and inevitability of staff about providing care to patients, NU
 363 visits have a negative effect on the ED's workflow and will result in staff's fatigue and burnout.

364 *"NU visits lead to tension among the personnel, because they should pay*
 365 *attention to both NU and USU patients. They have to deal with all patients."*
 366 (P1, a triage nurse)

367 *"They cause burnout."* (P5, an EMS resident)

3.2. Reductions in the employees' efficiency and effectiveness

369 NU visits reduce the efficiency and effectiveness of staff.

370 *"As an obstacle, they avoid doing good work and they can have negative*
 371 *effects on the good work of personnel."* (P1, a triage nurse)

372 *"They can reduce the nursing performance and proficiency."* (P8, a nurse)

3.3. Conflict and violence

374 One of the serious risks of NU visits is the creation of tension and conflict between patients and
375 personnel. With increasing workload due to NU visits, patients' expectations rise and also the
376 employees cannot properly provide services for patients, and it creates stress and conflict.

377 *"NU visits can lead to the physical violence." (P5, an EMS resident)*

378

379 **Solutions:**

380 The participants proposed different solutions for preventing and controlling NU visits, which can
381 be categorized into four groups of regulatory plans, awareness raising plans, payment
382 mechanism reforms, and organizational arrangements.

383 The regulatory plans included giving authority to triage nurses and EMSs, creating culture of
384 accountability among physicians, effective monitoring and evaluation (M&E) of healthcare
385 centers, and setting rules to prevent NU visits (applying rules against kinship relationships and
386 pulling strings).

387 The awareness raising plans included increasing public and patients' awareness, and
388 increasing physicians' awareness.

389 Payment mechanism reforms included removing financial incentives for admitting NU patients,
390 developing an appropriate payment system, and receiving higher fees from NU patients.

391 Organizational arrangements included setting up 24-hour and boarding clinics, referring patients
392 to other military hospitals, improving quality of care in other military hospitals, strengthening
393 para-clinical departments to perform diagnostic procedures, and strengthening the referral
394 system.

395 **1. Regulatory plans**

396 **1.1. Giving authority to triage nurses and EMSs**

397 The triage nurses and EMSs should be authorized, since they can properly guide and refer NU
398 patients.

399 *"EMSs and nurses should be given power to refuse NU patients' admission."*

400 *(P6, a nurse)*

401 *"A triage nurse should be strengthened and allowed to refer NU visits to the*

402 *clinic." (P8, a nurse)*

403 **1.2. Creating the culture of accountability among physicians**

404 Creating and developing the culture and channels of accountability among physicians for
405 referring and admitting patients to EDs is an important approach. These can make physicians
406 more sensitive to their referrals and also they will be more cautious about admitting NU patients
407 to EDs:

408 *"The accountability mechanism among physicians should be created." (P1, a*
409 *triage nurse)*

410 **1.3. Effective monitoring and evaluation (M&E) of healthcare centers**

411 In order to avoid healthcare centers profiteering which could create an inappropriate culture of
412 NU visits, an interviewee stated that:

413 *"The M&E of healthcare centers in private sector should be increased to*
414 *prevent their profiteering, because this leads to an inappropriate culture". (P2,*

415 *an EMS)*

416 **1.4. Setting rules to prevent NU visits**

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2
3 417 Implementation of strong and inflexible rules to deal with pulling strings is also a suitable way to
4 418 prevent NU visits. In addition, setting new rules for dealing with and preventing NU visits is an
5 419 alternative solution:

7 420 *"Rules should be set to prevent such visits and encourage the prevention of*
8 421 *NU admissions."* (P2, an EMS)

9 422 *"Another solution is to enforce immutable rules for those who want to be*
10 423 *admitted to the ED through kinship relationships."* (P2, an EMS)

12 424

13 425 **2. Awareness raising plans**

14 426 **2.1. Increasing public and patients' awareness**

15 427 The community should be aware of USU and NU conditions through promoting their awareness
16 428 in the schools, social networks, mass media, and in EDs:

17 429 *"Information should be provided to patients, so that they are informed through*
18 430 *the mass media. But this is not used properly. For example, some TV series*
19 431 *have been shown to people, in which it has been shown that in the ED*
20 432 *everything is calm and people are inspired if they go to an ED, they will be*
21 433 *faced with such quiet environment. Therefore, people expect to have a quiet*
22 434 *environment when they come to an ED, so that everything is in place and*
23 435 *they are dealt with quickly."* (P1, a triage nurse)

24 436 Also people should be informed about the consequences of patients' late visits, and they should
25 437 go to EDs for receiving services at the right time.

26 438 *"We need to teach people about the consequences of early and late visits for*
27 439 *receiving services through the mass media."* (P2, an EMS)

28 440 *"Culture creation (and training) should be done, so that patients understand*
29 441 *that EDs are not a place for NU patients."* (P8, a nurse)

30 442 *"Creating a culture should be over time. We tell our colleagues that they*
31 443 *shouldn't admit such patients, and if they do this once and admit NU patients*
32 444 *to the ED, the patients go to the ED for a lifetime and want to be admitted."*
33 445 *(P11, a triage nurse)*

34 446 **2.2. Increasing physicians' awareness**

35 447 The EMSs should be advised to refrain from admitting NU patients to EDs under any
36 448 circumstances:

37 449 *"EMSs should be justified, because they see that the ED is empty in some*
38 450 *hours, and just for that reason they say that the department is empty and let*
39 451 *NU patients be admitted."* (P3, a nurse)

40 452 *"The awareness of physicians who don't work in EDs should be increased*
41 453 *because some of them try to get rid of patients and tell them that they should*
42 454 *refer to the ED."* (P1, a triage nurse)

43 455

44 456 **3. Payment mechanism reforms**

45 457 **3.1. Removing financial incentives for admitting NU patients**

46 458 As mentioned in the Causes section, physicians' financial incentives have effects on admitting
47 459 NU patients to EDs. Disconnecting physicians' income and patients' admission can also be
48 460 effective in improving quality of care provided by the physicians. However, this should be

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3 461 accompanied by other financial incentives in order to prevent physicians from not providing
4 462 essential services to patients:

5 463 *"There should be no relationship between the physicians' income and the*
6 464 *hospital admission rate in the ED, and financial relationship must be*
7 465 *discontinued." (P1, a triage nurse)*

9 466 **3.2. Developing an appropriate payment system**

10 467 The reform of payment system was a solution that the interviewees referred to. Since physicians
11 468 often have a motivation for admitting patients who have NU problems because this has no
12 469 significant effect on their income, compared with those with acute conditions, and therefore they
13 470 prefer to admit patients with more stable conditions, which has a great effect on the NU visits.

14 471 *"The policies of a health care system should be such that patients who need*
15 472 *more care should pay more." (P2, an EMS)*

17 473 **3.3. Receiving higher fees from NU patients**

18 474 Receiving higher fees from NU patients is an important solution that should be paid special
19 475 attention by hospitals managers and policymakers. If patients come to this conclusion that
20 476 receiving urgent services in EDs for NU conditions has higher costs than that in other healthcare
21 477 centers such as clinics, polyclinics, etc., they will not prefer EDs for receiving care. This solution,
22 478 in addition to the short-term positive effect on the number of NU visits, will also have a major
23 479 effect on reducing NU visits in the long run.

24 480 *"NU patients coming to the ED should pay fees from 30% to 40% of total*
25 481 *costs." (P9, a triage nurse)*

26 482 *"In order to prevent NU visits, more co-payment or co-insurance should be*
27 483 *received from NU patients visiting the ED." (P6, a nurse).*

31 484 32 485 **4. Organizational arrangements**

33 486 **4.1. Setting up 24-hour and boarding clinics**

34 487 Setting up a 24-hour and boarding clinic for visiting patients was one of the solutions, to which
35 488 some interviewees referred.

36 489 *"The 24-hour backup centers should be set up. We have open clinics for up*
37 490 *to 23 o'clock, and after that, patients who have had fun at their other hours or*
38 491 *patients who have had, for example, sore throat, gradually come to the ED."*
39 492 *(P1, a triage nurse)*

40 493 Of course, all interviewees were not agreed with the establishment of a 24-hour clinic, as one of
41 494 them stated that:

42 495 *"Specialized clinics are not justified because they are not cost-effective." (P3,*
43 496 *a nurse)*

44 497 Also, we should consider high burden of visits in some days of year.

45 498 *"The clinic should be developed and more patients should be admitted. Like*
46 499 *the launch of a new train in the days of the year when there is a lot of*
47 500 *passengers and an extra train is used for Mashhad [a city in Iran], here in*
48 501 *some days of year when the number of patients is high, extra services (such*
49 502 *as a 24-hours clinic) should be provided, and in this case it is expected that*
50 503 *the situation will be very good. In the clinic, it can be said to the patients that*

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3 504 *if we cannot visit them in this morning, we can visit them in the evening.” (P9,*
4 505 *a triage nurse)*

5 506 Nevertheless, conducting studies on determining the volume of visits and referrals and the need
6 507 for setting up a specialized clinic are necessary and hospitals managers should pay attention to
7 508 conducting such studies:

8 509 *“Taking turns in the clinics should be strengthened. There is a need to study*
9 510 *in this regard, for example, how many neurosurgery patients have referred to*
10 511 *the clinic. The management of night clinics should be given to the new*
11 512 *graduates and they will also welcome it.” (P10, a nurse)*

12 513 **4.2. Improving quality of care in other military hospitals**

13 514 Improving quality of care provided by other military healthcare centers and hospitals can reduce
14 515 NU visits in the long run.

15 516 **4.3. Strengthening para-clinical departments to perform all diagnostic** 16 517 **procedures**

17 518 The clinic should be strengthened to perform all diagnostic procedures in order for not referring
18 519 patients to EDs for performing such procedures.

19 520 *“The para-clinical system should be strengthened and all diagnostic*
20 521 *procedures, such as sonography, etc., should perform. Providing services*
21 522 *should be more in order to make patients confident, and the para-clinical*
22 523 *system shouldn't refer patients to the hospital itself. Para-clinical system*
23 524 *should be strengthened in terms of time, number of visits and personnel.”*
24 525 *(P8, a nurse)*

25 526 *“We have had a successful experience, i.e. setting up the wound clinic in*
26 527 *which patients with bedsore, diabetics, etc. have been visited and since*
27 528 *establishing this clinic, NU visits to the ED have significantly been*
28 529 *decreased.” (P10, a nurse)*

29 530 **4.4. Strengthening the referral system**

30 531 Justifying and rationalizing referrals from the clinic to the ED is a solution, to which the
31 532 interviewees referred:

32 533 *“Referrals from the clinic to the ED should be logical, and this depends on the*
33 534 *patient's culture.” (P8, a nurse)*

34 535 In addition, the referral system and family physician plan should also be implemented across the
35 536 country, by which it is expected that NU cases are easily well-handled by the family physicians.

36 537 **DISCUSSION:**

37 538
38 539 This study showed that NU visits to EDs had several causes with negative consequences. The
39 540 convenient access and existence of well-equipped EDs, along with provision of high quality care
40 541 were some reasons for NU visits, which have well been addressed by other studies (21, 22). In
41 542 some studies, lack of access to family physicians has been reported as a reason for NU visits to
42 543 EDs (23, 24). This is despite the fact that history of implementing family physician plan in Iran is
43 544 more than 10 years ago and, unfortunately, this plan has not yet been implemented across the
44 545 country. The implementation of this plan in Iran has been faced with several challenges,
45 546 including delays in paying to healthcare providers, lack of effective referral system, weaknesses

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3 547 of political will and executive authorities, serious weakness of coordination between
4 548 stakeholders, and lack of an effective health information system across the country (25-28).
5 549 Having financial incentives by EMSs was an important cause, to which the interviewees
6 550 referred. In 1991, the fee-for-service payment policy was proposed by the Iranian Minister of
7 551 Health and Medical Education and was approved by the Cabinet (29). The evidence showed
8 552 that this policy had negative consequences, such as having financial incentives for providing
9 553 more services and admitting more patients and, consequently, imposing additional financial
10 554 burdens on the health system. The negative effects of this plan on EDs are also evident, one of
11 555 which can be the admission of NU patients.
12 556 Reforming the payment mechanism with the aim of disconnecting financial relationships
13 557 between physicians' income and admission of patients should be paid special attention by
14 558 healthcare managers and policymakers. The fee-for-service plan has had negative effects not
15 559 only on the behavior of physicians, but also on the behavior of private centers, so that patients
16 560 in the private centers are exposed to the variety of healthcare services and procedures, and this
17 561 has led to creating a false and inappropriate culture in patients so that they expect to receive
18 562 unnecessary healthcare services in public hospitals. Therefore, in addition to monitoring
19 563 physicians' behavior, the private centers should also be monitored and evaluated in order to
20 564 prevent their profiteering.
21 565 Lack of patients' knowledge and awareness of the urgent conditions for referring to EDs has
22 566 also been confirmed by other studies (30-34). The design and implementation of awareness
23 567 raising plans in EDs as well as in the mass media, schools and universities, social networks,
24 568 clinics, and healthcare centers can help promote the knowledge and awareness of patients and
25 569 community in general.
26 570 Inappropriate referrals by clinic's physicians, secretaries, and security guards have also effects
27 571 on patients' NU visits. Other studies have also confirmed the inappropriate and NU referrals by
28 572 physicians (33, 35, 36) and others (37). To overcome such referrals, a combination of
29 573 awareness raising plans for physicians and other healthcare employees, giving authority to
30 574 triage nurses and EMSs, creating culture of accountability among physicians, and setting rules
31 575 to prevent NU visits should be considered. Some referrals for admission to EDs are also made
32 576 by patients who want to use kinship relationships and to pull strings. Taking punitive measures
33 577 can be effective.
34 578 Higher priority of EDs in order to use their temporary beds for admission to hospital inpatient
35 579 departments is one of the causes of NU visits. To the best of our knowledge as well as literature
36 580 reviews, we did not find studies to address such problems. Inappropriate uses of EDs' beds until
37 581 the related beds in hospital inpatient departments become empty can lead to negative
38 582 consequences for USU patients and also can result in financial burdens on the health system as
39 583 well as health insurance organizations. Also, such uses of ED beds are an abuse of health
40 584 facilities and resources. It requires decisive actions from healthcare managers and policy
41 585 makers.
42 586 Moreover, according to our results, one of the reasons for referring to EDs was the low costs for
43 587 patients, which is in line with the results of other studies (38, 39). It is recommended to receive
44 588 higher fees from inappropriate and NU patients referring to EDs in order to prevent NU visits.

589 Crowding in other healthcare centers, such as clinics and physicians' offices, encourages
590 patients to make NU visits to EDs for receiving faster care, which is confirmed by studies
591 conducted in Iran (38), Turkey (40), Jordan (41), France (42), and the United States (43).

592 This study showed that patients' exaggeration of the severity of their illness in order to being
593 admitted is one of the causes of NU visits to EDs, which is similar to the results of other studies
594 (44, 45). This problem can be solved by educating physicians, triage nurses, patients and
595 caregivers, and increasing public awareness. Also, in the awareness raising plans, the negative
596 effects of NU visits should well be addressed, so that patients become aware of the negative
597 effects of such visits. This can act as a factor in reducing NU visits.

598 Designing and implementing clinical guidelines in EDs is one of the issues that unfortunately
599 have not been paid special attention in Iran, and most physicians are reluctant to use available
600 guidelines. It also seems that there is little willingness to design and implement guidelines
601 among the senior policy makers.

602 Our study showed that patients prefer going to a well-equipped center to receive required care
603 to referring to and wandering in other centers. This has also been confirmed by another study
604 (46). Strengthening para-clinical departments to perform all diagnostic procedures can reduce
605 the number of NU visits. Additionally, by conducting needs assessment studies and determining
606 the importance of setting up 24-hour and boarding clinics, such clinics can be set up for some
607 specialties.

608 Strengthening the referral system and improving the quality of care provided by other centers
609 can also help control and reduce NU visits in the long run.

610 It is suggested to conduct other studies in order to examine how to apply incentive and punitive
611 rules, improve payment mechanisms to physicians, develop patients and providers' awareness
612 raising plans, and identify factors which affect overcrowding in healthcare centers and EDs.
613 Also, further quantitative studies should be conducted to determine the effects of NU visits on
614 EDs crowding and overcrowding.

615 This study has been conducted as the first qualitative study in Iran for determining causes and
616 consequences of NU visits, as well as possible solutions for preventing such visits, which are
617 the strengths of this study. In the present study, EMSs and nurses who had several years of
618 work experience in the ED were interviewed.

619 One of the limitations of this study was the lack of conducting interviews with patients who had
620 come to the ED. It is worth noting that although in a prospective study, we explored the causes
621 of NU visits from the patients' perspectives, carrying out an in-depth qualitative study to
622 determine the patients' perspectives is necessary. Another limitation of the current study was
623 the inability to digitally record interviews due to the ED supervisor's opposition and, therefore, it
624 was tried to overcome this limitation by taking notes during interviews.

625

626 **CONCLUSION:**

627 NU visits to EDs have negative consequences for patients, providers, and the health system. It
628 is suggested that health policy makers should design and implement a combination of solutions
629 categorized into four groups of regulatory plans, awareness raising plans, payment mechanism
630 reforms, and organizational arrangements. As a long term strategy, implementing the referral
631 system and family physician plan across the country should be considered as a national priority.
632 Last but not least, there is no study carried out in Iran on the solutions for NU visits to EDs, and

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3 633 little attention has been paid by researchers. This per se has led to the lack of sufficient
4 634 evidence for informed policy making on the magnitude of dilemma and the associated factors.
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6 635

636 **Author Contributions**

637 SMM was responsible for the conception, design, implementation, analysis, drafting the
638 manuscript and supervision of the whole process of the study. MB is the principal researcher,
639 who was involved in the conception, development, implementation, data collection, data
640 analysis, and writing the manuscript. ET and RR were responsible for the intellectual
641 development of the manuscript. All authors have read and approved the final manuscript.

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644 **Competing interests**

645 The authors have declared that no competing interests exist.

646 **Data sharing statement**

647 Data will not be made publicly available. For more information, please contact the
648 corresponding author.
649

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763 FIGURES' LEGEND

764 Figure 1. Themes of causes of, and consequences of NU visits

765 Figure 2. Possible solutions for preventing and controlling NU visits to EDs

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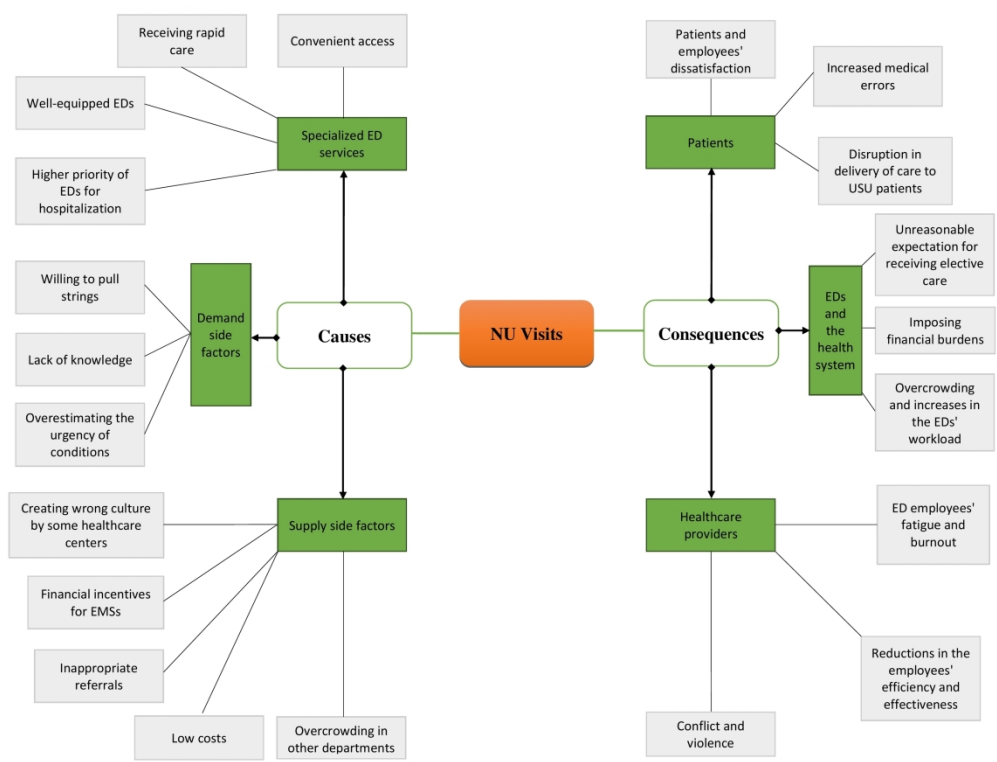


Figure 1. Themes of causes of, and consequences of NU visits

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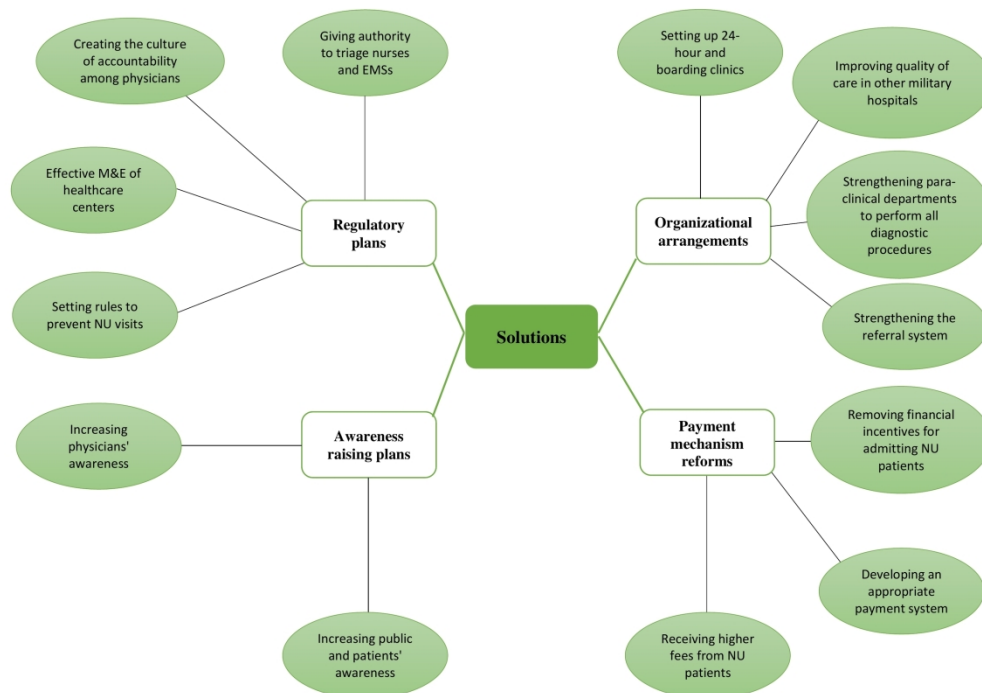


Figure 2. Possible solutions for preventing and controlling NU visits to EDs

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Standards for Reporting Qualitative Research (SRQR)*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

Title and abstract

<p>Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended</p>	2
<p>Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions</p>	2

Introduction

<p>Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	2
<p>Purpose or research question - Purpose of the study and specific objectives or questions</p>	3

Methods

<p>Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**</p>	3
<p>Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability</p>	3
<p>Context - Setting/site and salient contextual factors; rationale**</p>	3
<p>Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**</p>	3
<p>Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues</p>	4
<p>Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**</p>	3

1 2 3 4 5	Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	3
6 7 8	Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	3
9 10 11 12	Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	3
13 14 15 16	Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	3
17 18 19 20	Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	3

Results/findings

23 24 25 26	Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	4
27 28 29	Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	4-12

Discussion

32 33 34 35 36 37	Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	12-14
38 39	Limitations - Trustworthiness and limitations of findings	14

Other

42 43 44	Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	15
45 46	Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	15

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

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**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
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Title Page

Non-urgent visits to emergency departments: A qualitative study in Iran exploring causes, consequences, and solutions

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Keywords: Emergency Department, Iran, Non-Urgent Visits, Qualitative Study

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3 24 **Non-urgent visits to emergency departments: A qualitative study in Iran exploring**
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5 25 **causes, consequences, and solutions**
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12 28 **ABSTRACT**
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14 29 **Objective:** To explore the causes and consequences of non-urgent visits to emergency
15 30 departments in Iran and then suggest solutions from the healthcare providers' viewpoint.
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17 31 **Design:** Qualitative descriptive study with in-depth, open-ended and semi-structured interviews
18 32 which were inductively analyzed using qualitative content analysis.
19

20 33 **Setting:** A territorial, educational and military hospital in Iran.
21

22 34 **Participants:** Eleven healthcare providers including eight nurses, two emergency medicine
23 35 specialists and one emergency medicine resident.
24

25 36 **Results:** Three overarching themes of causes and consequences of non-urgent visits to the
26 37 emergency department in addition to four suggested solutions were identified. The causes have
27 38 encompassed the special services in emergency department, demand-side factors, and supply-
28 39 side factors. The consequences have been categorized into three overarching themes including
29 40 the negative consequences on patients, healthcare providers and emergency departments as
30 41 well as the health system in general. The possible solutions for preventing and controlling non-
31 42 urgent visits also involved regulatory plans, awareness-raising plans, payment mechanism
32 43 reforms, and organizational arrangements.
33

34 44 **Conclusion:** We highlighted the need for special attention to the appropriate use of emergency
35 45 departments in Iran as a middle-income country. According to the complex nature of emergency
36 46 departments and in order to control and prevent non-urgent visits, it can be suggested that
37 47 policymakers should design and implement a combination of the possible solutions.
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Strengths and limitations of this study

1. This study is the first study which qualitatively explored the causes and consequences of non-urgent visits in Iran and other low-and-middle income countries and suggested solutions to treat the arising problems.
2. The semi-structured, in-depth and open-ended interviews with key informants allowed us to gather data from different perspectives.
3. This study did not include patients and then their perspectives were not considered in the proposed solutions.

INTRODUCTION

Emergency departments (EDs) are designed to provide rapid, high-quality, continuously accessible and unscheduled care to emergency cases (1, 2). It means that EDs are not ideal place for caring the non-urgent (NU) conditions (3). Patients with NU visits are those patients who do not have life-threatening problems, nor require rapid care, their care can be safely delayed (4), and this delay would not increase the likely adverse outcomes (5). It is estimated that about one-third of patients who visit EDs have NU problems which can potentially be addressed by the outpatient departments, primary care settings and mobile centers (6, 7). Some studies have reported even up to half of all visits to EDs are NU visits, and the differences in these studies can be due to the various methodologies used in defining NU visits (8). Recently, the misuse of EDs by NU patients has been reported globally (6, 9-12). This misuse has potentially negative consequences including overcrowding, increased costs, poor healthcare quality, lack of continuity of care and timely urgent care for urgent and semi-urgent (USU) patients in addition to the incidence of medical errors (13-15).

Causes of NU visits are not clearly understood (16), especially in the low-and-middle income countries (LMICs). To the best of our knowledge, there is no comprehensive study to

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3 75 identify causes and consequences of that problem in Iran, as a middle-income country. Therefore,
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5 76 this study was conducted to determine the causes, consequences of NU visits to EDs from the
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7 77 healthcare providers' viewpoint and then suggest solutions in the light of their perspectives.
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9 78 **Description of Iranian healthcare system**

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11 79 Iran has a unique model of medical education in which healthcare services and medical education
12
13 80 have been integrated since 1985 under the supervision of Ministry of Health and Medical
14
15 81 Education (MOHME). The health network has been established and expanded by MOHME
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17 82 throughout the country aiming at reducing inequities, reaching universal coverage and increasing
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19 83 access to health care services particularly in the deprived and rural areas. By achieving its goals,
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21 84 the World Health Organization has acknowledged this network as an incredible masterpiece and
22
23 85 model of success (17). Although the normal flow of healthcare services is from the primary health
24
25 86 care to secondary and tertiary hospitals, patients tend to bypass it and refer directly to the
26
27 87 outpatient departments in the secondary and tertiary hospitals and healthcare centers which in
28
29 88 turn reflects the weak referral system in Iran (18, 19).
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32 33 34 35 90 **METHODS**

36 37 91 **Design**

38
39 92 Using a qualitative descriptive design (20), we held in-depth, open-ended and semi-structured
40
41 93 interviews with key informants to explore the experiences and perceptions of physicians and
42
43 94 nurses working in the ED. Qualitative interviews give respondents the opportunity in order to
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45 95 discuss the topic of interest in a way that may not be anticipated by the study researchers (21).
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47 96 Face-to-face interview also ensures the effective discussion of information between the
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49 97 researchers and interviewees. Basically, the study protocol, methods and materials, and interview
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51 98 guide were reviewed and approved by the Research Committee of University of Medical Sciences
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99 (BUMS). The Canadian Triage and Acuity Scale (CTAS) was used to sort the visits to the ED in
100 which levels 4 and 5 had been considered as NU visits according to this scale.

101

102 **Setting, recruitment, and sampling**

103 The studied hospital, one of the largest in Tehran, is a territorial, military and teaching hospital
104 with 700 available beds. Its accreditation grade was one-excellent, according to the most recent
105 national accreditation undertaken by the MOHME. The ED provides 24-hour emergency care for
106 all patients and successfully runs a residency program for emergency medicine. In each working
107 shift in the ED, there are 2 emergency medicine specialists (EMSs), 10 - 15 nurses, and 4 - 5
108 nurse aides. The researchers used a combination of snowball and purposeful sampling methods
109 to recruit key informants from among the healthcare providers working in the ED. Through which,
110 nurses (n=8), EMSs (n=2), and emergency medicine resident (n=1) had been selected.

111

112 **Data collection**

113 The potential key informants were invited after the verbal informed consent was obtained from all
114 participants and the confidentiality of their responses was assured. The researchers have asked
115 the key informants about their viewpoints about the causes and consequences of NU visits to EDs
116 and the possible solutions to be implemented. At the end of interviews, further questions were
117 also asked about the discussion process and all related topics were checked whether they had
118 been covered or not. One of the researchers (SMM) interviewed all key informants within the ED.
119 The recruitment of new key informants continued until thematic/data saturation where no
120 additional information nor new ideas could be developed.

121

122 **Data analysis**

123 All interviews were recorded by the written notes, transcribed verbatim, rechecked for more
124 accuracy and entered into MAXQDA® software in order to perform qualitative data management

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2
3 125 and analysis. By using inductive qualitative content analysis, we extracted and organized
4
5 126 significant themes through internal discussion among the research team. Qualitative content
6
7 127 analysis is a well-established method which allows different levels of deep interpretation (22). Key
8
9 128 steps of analysis include (23): preparing, organizing and reporting. The data were discussed
10
11 129 collaboratively in three virtual meetings among the research team through which discrepancies
12
13 130 had been discussed till reaching consensus on thorough and consistent coding.

15
16 131 In this study, two criteria had to be met in order to prove trustworthiness: credibility and
17
18 132 transferability (24). Credibility refers to the believability of the data and whether the findings are
19
20 133 faithfully linked to the real descriptions provided by the participants (24). To enhance the credibility
21
22 134 of findings, we used a wide range of key informants to capture deep information about the
23
24 135 research questions. Regarding the transferability, it should be noted that the local context may
25
26 136 influence the findings (25) therefore we clearly described the study setting and context, selection
27
28 137 process and characteristics of key informants in addition to the methods of data collection and
29
30 138 analysis. Moreover, we appropriately presented the findings and selected quotations based on
31
32 139 consensus in order to enhance transferability (22),

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35 140 The quotes which had corresponded the different themes and subthemes were selected,
36
37 141 translated from Persian to English, then read, checked, and evaluated by the team to ensure
38
39 142 accuracy and fluency. Generally translation was literal meanwhile the specific Persian idioms,
40
41 143 which were not easy to translate, were altered by native English speakers in the research team
42
43 144 for more fair content, and bilingual team members have checked for confirming the accuracy. Any
44
45 145 potential misinterpretations were clarified and agreed upon. Original quotes are available on
46
47 146 reasonable request.

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51 148 **Ethical considerations**

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3 149 The approval for this study was obtained by the Ethics Committee of Research in Baqiyatallah
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5 150 University of Medical Sciences (Ref: CH/7019/998). In the light of study aim and objectives, verbal
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7 151 informed consents were also obtained from all participants before conducting the interviews.
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11 153 **Patients and public involvement**

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14 154 Patients and public were not involved in the research design, recruitment or conducting this study.
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18 157 **RESULTS**

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22 158 We identified three overarching themes for causes and consequences of NU visits to EDs in
23
24 159 addition to four solutions for NU visits to EDs.

25
26 160 The causes included the specialized services provided in ED, demand-side factors, and
27
28 161 supply-side factors. It is worth noting that the specialized services involve convenient access,
29
30 162 receiving rapid care, well-equipped EDs and higher priority EDs for hospitalization. Demand-side
31
32 163 factors are the factors which are related to service users (i.e. patients referred to EDs). In other
33
34 164 words, they are the factors which encourage patients to refer to EDs including lack of knowledge,
35
36 165 willingness to pull strings and overestimating the urgency of their conditions. Pulling strings is a
37
38 166 term means making use of one's influence and contacts to gain an advantage unofficially or
39
40 167 unfairly. Supply-side factors were also those factors related to service providers and directly affect
41
42 168 the NU visits embracing the insufficient financial incentives for EMSs, inappropriate referrals,
43
44 169 overcrowding in other departments and low service costs (Figure 1).

45
46
47 170 The consequences of NU visits were categorized into three overarching themes including
48
49 171 the negative consequences on patients, healthcare providers and EDs as well as the health
50
51 172 system in general. The possible solutions for limiting and controlling NU visits also encompassed
52
53 173 regulatory plans, awareness-raising plans, payment mechanism reforms and organizational
54
55 174 arrangements (Figure 2). The detailed descriptions of each theme are as follows:

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3 175 **Causes:**

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5 176 **1. Specialized ED services**

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7 177 **1.1. Convenient access**

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9 178 Because the ED provides healthcare services 24 hours all the week, patients access is relatively
10
11 179 higher, better and easier than outpatient departments and other healthcare centers.

12
13 180 *"The idea implanted in people minds is that access to EDs is easier than other*
14
15 181 *healthcare centers and it can make their admission easier" [P1, a triage nurse].*

16
17 182 *"EDs are open all the time while the access to other health centers is limited to*
18
19 183 *specific hours" [P8, a nurse].*

20
21
22 184 **2.1. Receiving rapid care**

23
24 185 Due to the nature of EDs, prompt diagnostic and therapeutic services should be provided. This
25
26 186 was not neglected by the participants and they acknowledged the quick care as a reason for NU
27
28 187 visits.

29
30 188 *"Patients come to the ED to receive rapid care and consultations. For example,*
31
32 189 *if we ourselves (the personnel) want to make an appointment with a*
33
34 190 *rheumatologist, it will take us month but for the ED's patients, it will be faster"*
35
36 191 *[P4, a nurse].*

37
38 192 *"The delay in the clinics' workflow is a cause of NU visits to the ED. Meanwhile,*
39
40 193 *providing care such as lung consultation occurs promptly" [P10, a nurse].*

41
42
43 194 **3.1. Well-equipped EDs**

44
45 195 Having all diagnostic facilities as well as skilled personnel in EDs were one of the reasons that
46
47 196 had been stated by the participants.

48
49 197 *"In addition to EMSs, other specialists are available in the ED" [P6, a nurse].*

50
51 198 *"Focus on patients is prioritized in the ED in which all diagnostic groups and*
52
53 199 *facilities are available. But if a patient goes to a physician's office and then has*
54
55 200 *been asked to do a CT-Scan, the patient will go to the CT-Scan center and*

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3 201 *then if the same patient has been recommended to perform MRI, the patient*
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5 202 *should go through another process. In general, the patient is assured that*
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7 203 *physicians, nurses and other staff are well-trained as well as all necessary*
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9 204 *equipment are available in the ED” [P8, a nurse].*

205 **4.1. Higher priority of EDs for hospitalization**

13 206 One of the main ED’s roles is admitting patients and referring them to inpatient departments more
14
15 207 than other departments such as inpatient admission unit and clinics. Thus, patients tend to go to
16
17 208 EDs to be admitted to inpatient departments directly or to remain in the ED until having a space
18
19 209 in case of overcrowded inpatient wards.

21
22 210 *“Some NU patients occupy ED beds until having a space in inpatient departments” [P4,*
23
24 211 *a nurse].*

25
26 212 *“In addition to prompt care, the ED has a priority over other departments with regards to*
27
28 213 *admission and patients have higher priority to be admitted and referred to other*
29
30 214 *departments as well” [P8, a nurse].*

32 215 **2. Demand side factors**

33 216 **2.1. Lack of knowledge**

34
35 217 Lack of patients' knowledge and awareness towards the definition of urgent conditions negatively
36
37 218 affects NU visits to EDs. This is due to lack of influential role of mass media in addition to the
38
39 219 formation of negative culture.

40
41 220 *“The main factor is the knowledge and culture of our people. They do not have*
42
43 221 *sufficient knowledge. The mass media don’t provide enough information for the*
44
45 222 *community about this issue” [P2, an EMS].*

46
47 223 However, another interviewee believed that:

48
49 224 *“A small percentage of patients do not know that they are urgent or not” [P5, an*
50
51 225 *EMS resident].*

1
2
3 226 Also, lack of awareness about the main duties of clinics in providing care to the NU
4
5 227 patients can be another cause.

6
7 228 *"People are not aware of the duties of some departments such as clinics" [P11,*
8
9 229 *a triage nurse].*

10 11 230 **2.2. Willingness to pull strings**

12
13
14 231 Willingness to pull strings was one of the causes that participants mentioned during the interviews.

15
16 232 *"We had a patient came to the ED and said he is a close friend to Mr. X who*
17
18 233 *told him to come to the ED and said don't worry, the personnel will deal with*
19
20 234 *your illness sooner" [P9, a triage nurse].*

21
22 235 There was another type of pulling the strings:

23
24 236 *"Having kinship relationships is important. For example, patients bring a letter*
25
26 237 *from the hospital's technical officer or other managers in order to facilitate their*
27
28 238 *admission to the ED. The monitoring and evaluation office at this hospital also*
29
30 239 *may inform the ED staff to allow patients admission till specific time, e.g.*
31
32 240 *evening, and then to refer them to other departments" [P10, a nurse].*

33 241 **2.3. Overestimating the urgency of conditions**

34
35
36
37 242 Some patients seek refuge to several ways for being admitted to EDs. One of these unwise ways
38
39 243 is to exaggerate the severity and urgency of suffered conditions.

40
41 244 *"Some of patients exaggerate illnesses and severity of their conditions as an*
42
43 245 *attempt to convince the staff about providing them the necessary care in the*
44
45 246 *ED" [P5, an EMS resident].*

46 47 247 **3. Supply-side factors**

48 49 248 **3.1. Financial incentives for emergency medicine specialists (EMSs)**

50
51 249 Participants declared that EMSs' fee-for-service (FFS) payment is an important factor which is
52
53 250 associated with the admission of NU patients thereby depending on the number of admitted
54
55
56
57

1
2
3 251 patients. In other words, there is a direct financial relationship between patient's admission to EDs
4
5 252 and the increases in EMSs' income in Iran.

7 253 *“There is a financial relationship between the number of patients admitted to*
8
9 254 *the ED and specialist's fee-for-service payment. Some of the EMSs in the*
11 255 *screening room have been previous medical students of senior physicians.*
13
14 256 *One a day, one of these EMSs showed me a text message in which a senior*
15
16 257 *physician in the ED in that day asking him to let patients enter the ED” [P10, a*
17
18 258 *nurse].*

20 259 **3.2. Creating negative culture by some healthcare centers**

22 260 Previous referrals of patients to some healthcare centers, especially private centers, have a
23
24 261 significant effect on their current NU visits to EDs. That is because patients have received
25
26 262 unnecessary services in these private centers in order to accomplish unfair profit from those
27
28 263 patients.

30 264 *“Private hospitals encourage this behavior in which unnecessary services are*
32
33 265 *provided which in turn created this patients' mentality that leads to NU visits to*
34
35 266 *EDs in order to get some services according to their desire. As a result,*
36
37 267 *negative attitude of patients has been formed especially when they seek care*
38
39 268 *at public hospitals in which they expect to receive similar services as happened*
40
41 269 *at the private ones” [P2, an EMS].*

43 270 **3.3. Inappropriate referrals**

45 271 Referring the NU patients to EDs, either verbally or by written form, common. Some physicians
46
47 272 who do not have beds at their hospital wards often don't feel accountability and easily refer
48
49 273 patients to the ED. It should be noted that this is rooted in some physicians as a sort of profiteering
50
51 274 or at least to keep their patients. Physicians are not willing to lose their patients and then urge
52
53 275 them to come to their own private offices or to the private hospital where they are working at
54
55 276 through which referring those patients to the ED.

1
2
3 277 *"We have a lot of patients to whom their physicians gave two letters: one for*
4
5 278 *the hospital admission officer and the other one for the ED. The physicians*
6
7 279 *also tell the patients to go first to the admission officer and if he/she doesn't*
8
9 280 *respond, they can go to the ED with the second letter" [P10, a nurse].*

11 Not only physicians refer patients inappropriately but also some other hospitals do the same using
12
13 282 ambulance without any coordination. Moreover, some other employees such as secretaries and
14
15 283 security guards within the health sector, hospitals in particular, may also advise patients to receive
16
17
18 284 care in the ED.

20 285 *"Patients are referred in a bad manner. Employees such as secretaries and security*
21
22 286 *guards encourage patients to refer to the ED. We have patients from other towns who*
23
24 287 *visit the clinics and they are recommended by some other employees to refer to the ED*
25
26 288 *because of the limited number of patients on clinics' lists and in order to avoid their*
27
28 289 *disturbances" [P9, a triage nurse].*

30 290 **3.4. Overcrowding in other departments**

32 291 Overcrowding in other departments such as outpatient clinics and admission department is an
33
34 292 important cause of NU visits to EDs. Overcrowding in the clinics wanders patients and they
35
36 293 inevitably go to the ED. Importantly, patients from other provinces also used to come to this
37
38 294 hospital as it is famous for its high quality services.

41 295 *"Departments and clinics are overcrowded, so patients choose the ED to*
42
43 296 *receive care especially when they travel for a long time and can't wait patiently"*
44
45 297 *[P5, an EMS resident].*

47 298 **3.5. Low costs**

49 299 All inpatient services are free of charge for some patients, hence they will endeavor to be
50
51 300 hospitalized in any way in order to considerably reduce their costs.

53 301 *"To pay less ... their services will be free of charge if they are hospitalized but*
54
55 302 *this is not the case for outpatient services" [P6, a nurse].*

1
2
3 303 *"Patients usually come to the ED ... as soon as the patient's record is set, they will not*
4
5 304 *pay for rendered services" [P8, a nurse].*
6
7 305
8
9 306

11 307 **Consequences:**

13 308 **1. Negative consequences on patients**

15 309 **1.1. Patients and employees' dissatisfaction**

17 310 NU visits to EDs result in dissatisfaction of both patients and healthcare providers. In addition,
18 311 decelerating the workflow of procedures in EDs will lead to dissatisfaction in both NU and USU
19 312 patients. In USU patients, dissatisfaction can be due to the lack of timely delivery of care.

21 313 *"With NU visits, the satisfaction decreases" [P5, an EMS resident].*

23 314 In addition, problems caused by crowding and the arising complaints from patients also lead to
24 315 dissatisfaction and may be burnout of ED's staff as well as.

26 316 *"NU patients themselves became pessimistic about the system because they*
27 317 *think that they are trying for nothing. If they are not admitted to the ED, they*
28 318 *say that they have been disrespected, and they will complain to hospital*
29 319 *managers" [P9, a triage nurse].*

31 320 **1.2. Increased medical errors**

33 321 Since the given time for providing care in EDs is too short for diagnosis and assessment the
34 322 cases, the quality of care would decrease and this may raise the probability of medical errors.
35 323 These are some of the consequences of increasing NU visits.

37 324 *"When the ED is crowded by NU visits, the physicians spend less time with the*
38 325 *single patient. Therefore, quality, monitoring and also follow-up of patients will*
39 326 *decrease" [P8, a nurse].*

41 327 **1.3. Disruption the care provided to urgent and semi-urgent (USU) patients**

1
2
3 328 NU visits to EDs would hinder the provision of care to truly USU patients. This is often happens
4
5 329 as a result of lacking the knowledge and awareness of the seriousness of USU circumstances
6
7 330 which may be aggravated because of the increase in NU visits. In other words, the lesser NU
8
9 331 visits, the lesser the crowding, the more available time and effort for USU cases.

11 332 *“Whenever the department isn’t crowded, the whole work is getting faster and*
12
13 333 *the patients will receive care faster. In this ED, there was a patient suffering*
14
15 334 *cardiovascular problems, the time he came the department wasn’t crowded so*
16
17 335 *we did an electrocardiogram test once for him without observing any problem.*
18
19 336 *When we repeated the test again, a serious problem has been discovered and*
20
21 337 *immediately managed. Sometimes, crowding and the available time is a matter*
22
23 338 *of life or death” [P4, a nurse].*

24
25
26 339 *“If we want to admit the NU patients, we will oppress the urgent patients” [P9, a triage*
27
28 340 *nurse].*

29
30
31 341 One participant had an awful experience:

32
33 342 *“The real urgent patients are not dealt with. We had a patient suffering*
34
35 343 *myocardial infarction, he was taken for doing angiography two hours after his*
36
37 344 *arrival to the ED meanwhile his golden time was only 30 minutes” [P10, a*
38
39 345 *nurse].*

40 41 346 **2. Negative consequences on EDs and the health system**

42 43 347 **2.1. Unreasonable expectation for receiving elective care**

44
45 348 When they are admitted to ED, NU patients expect receiving elective care according to their desire
46
47 349 as they think that their situation is also urgent. Therefore, they start to ask for several treatment
48
49 350 procedures.

50
51 351 *“NU visits lead to unreasonable expectation of elective services. When these*
52
53 352 *patients are admitted to the ED, they ask for different procedures. For example,*

1
2
3 353 *we had a patient with low back pain and constantly was asking: "when will I do*
4
5 354 *my Magnetic Resonance Image (MRI)?" [P3, a nurse].*
6

7 355 **2.2. Financial burdens**

8
9 356 Every patient admitted to EDs needs more specialized staff, equipment, medicines, fluids,
10
11 357 laboratory tests, imaging ... etc. However, receiving necessary care in outpatient departments will
12
13 358 be at lower costs. Therefore, NU visits impose additional financial burdens on the healthcare
14
15 359 center and the health system in general as well.

16
17
18 360 *"NU visits might yield in squandering hospital resources as a result of overuse.*
19
20 361 *For instance, blood testing is a routine procedure in the ED for the vast majority*
21
22 362 *of admitted patients. However, some of those patients will be discharged on*
23
24 363 *the behalf of the specialist before getting the laboratory results. This means*
25
26 364 *misuse and wastage of the scarce materials" [P10, a nurse].*

27
28 365 *"NU visits can result in imposing extra costs on the ED and insurance*
29
30 366 *companies through which any patient admitted to the ED needs at least a*
31
32 367 *secretary, nurse, nurse assistant and equipment, while this patient could be*
33
34 368 *treated simply in the outpatient clinic" [P3, a nurse].*

35 36 37 369 **2.3. Overcrowding and increases in the EDs' staff workload**

38
39 370 It is inevitable that EDs would be overcrowded due to the excess in NU visits which potentially
40
41 371 raise the workload of EDs' staff:

42
43 372 *"This has a negative effect on the load of the ED's staff, and it can slow down*
44
45 373 *work and disorganize duties" [P6, a nurse].*

46
47 374 *"NU visits might lead to unreasonable crowding and disrupt the accurate triage"*
48
49 375 *[P8, a nurse].*

50 51 376 **3. Negative consequences on healthcare providers**

52 53 377 **3.1. Fatigue and burnout of EDs' employees**

1
2
3 378 The huge number of NU visits to EDs is critical especially when we shed light on the supply-side,
4
5 379 i.e. healthcare providers, for whom NU visits will be accountable for their fatigue and burnout.

6
7 380 *"NU visits raise the tension among personnel, because of overload and the*
8
9 381 *attention which should be paid to all patients, NU and USU" [P1, a triage nurse].*

10
11 382 *"They cause burnout" [P5, an EMS resident].*

12 383 **3.2. Reductions in the staff efficiency and effectiveness**

13
14 384 NU visits reduce the efficiency and effectiveness of ED's staff.

15
16 385 *"As an obstacle, NU visits hinder the quality assurance of the work and this*
17
18 386 *could reflected negatively on the performance of the staff" [P1, a triage nurse].*

19
20 387 *"They can diminish nurses' performance and proficiency" [P8, a nurse].*

21 388 **3.3. Conflict and violence**

22
23 389 One of the crucial risks of NU visits is the creation of tension and conflict between patients and
24
25 390 providers or between the staff members themselves. At the time in which patients' expectations
26
27 391 magnify, employees cannot properly meet these expectations because of work overload, and this
28
29 392 creates stress and conflict.

30
31 393 *"NU visits can lead to physical violence. Providers can't provide appropriate services while*
32
33 394 *patients expect to receive perfect care" [P5, an EMS resident].*

34
35 395

36
37 396

38 39 397 **Solutions**

40
41 398 In our study, the participants proposed different solutions for preventing and controlling NU visits.
42
43 399 These solutions can be categorized into four groups; regulatory plans, awareness-raising plans,
44
45 400 payment mechanism reforms, and organizational arrangements.

46
47 401 Regulatory plans include: delegation of triage nurses and EMSs, creating culture of
48
49 402 accountability among physicians, effective monitoring and evaluation (M&E) of healthcare
50
51 403 centers, and setting rules to limit NU visits. Awareness-raising plans encompass: increasing the

1
2
3 404 awareness of public, patients and physicians as well. Payment mechanism reforms include:
4
5 405 removal of financial incentives for admitting NU patients, developing an appropriate payment
6
7 406 system, and hiking the fees for NU cases. Organizational arrangements embrace: setting up 24-
8
9 407 hour and mobile clinics, referring patients to other military hospitals, improving quality of care in
10
11 408 other military hospitals, strengthening para-clinical departments to perform diagnostic
12
13 409 procedures, and boosting the referral system.
14
15

16 410

18 411 **1. Regulatory plans**

20 412 **1.1. Giving authority to the triage nurses and EMSs**

22 413 The triage nurses and EMSs should be delegated with a real authority which could give them the
23
24 414 ability to guide and refer NU patients properly.

26 415 *"EMSs and nurses should be given power to refuse admission of NU patients"*

28 416 *[P6, a nurse].*

30 417 *"A triage nurse should be supported and allowed to refer NU visits to the*
32
33 418 *outpatient clinics" [P8, a nurse].*

35 419 **1.2. Creating the culture of accountability among physicians**

37 420 Creating and developing the culture which implant the feeling of accountability among physicians
38
39 421 for referring and admitting patients to EDs is considered an important approach. This can
40
41 422 contribute in raising physicians' sensitivity towards referrals as well as admission of NU patients
42
43 423 to EDs:

45 424 *"The accountability perspective among physicians should be enhanced" [P1, a*
47
48 425 *triage nurse].*

50 426 **1.3. Effective monitoring and evaluation (M&E) of healthcare centers**

51 427 In order to avoid healthcare centers profiteering which in turn forces the people to search for
52
53 428 another way to get the service and this may be carried out inappropriately such as NU visits. An
54
55 429 interviewee stated that:

1
2
3 430 *"M&E of healthcare centers in the private sector should be increased to prevent*
4
5 431 *profiteering against patients ... this is helpful in reducing NU visits to the ED"*
6
7 432 *[P2, an EMS].*
8

9 433 **1.4. Setting rules and regulations to prevent NU visits**

10
11 434 Implementation of strong and inflexible rules and regulations is also a suitable way in preventing
12
13
14 435 or at least reducing NU visits.

15
16 436 *"Rules and regulations should be set properly to prevent such these visits" [P2,*
17
18 437 *an EMS].*

19
20 438 *"Another solution is to enforce immutable rules for those who want to be*
21
22 439 *admitted to the ED through personal relationships" [P2, an EMS].*
23

24 440

26 441 **2. Awareness-raising plans**

28 442 **2.1. Increasing public and patients' awareness**

29
30 443 The community should be aware of USU and NU conditions through promoting their awareness
31
32 444 in the schools, social networks, mass media, and in EDs as well:

33
34
35 445 *"Information should be provided to patients through the mass media but this is*
36
37 446 *not used properly. For example, some TV series show that everything in the*
38
39 447 *ED is ideal which inspires people to go for receiving the desired care.*
40
41 448 *Unfortunately, this isn't realistic" [P1, a triage nurse].*
42

43 449 Also people should be informed about the difference between early and late visits to the EDs and
44
45 450 the consequences of both of each.

46
47 451 *"We need to teach people the consequences of early and late visits for*
48
49 452 *receiving services through the mass media" [P2, an EMS].*

50
51 453 *"People have to understand that EDs are not a place for NU patients" [P8, a*
52
53 454 *nurse].*
54
55
56
57

1
2
3 455 *"Creating a culture about that should be all the time. We tell our colleagues*
4
5 456 *that admitting a patient to the ED for once means admitting all forever" [P11, a*
6
7 457 *triage nurse].*

9 458 **2.2. Increasing physicians' awareness**

11 459 The EMSs should be advised to refrain from admitting NU patients to EDs under any
12
13 circumstances:

15 461 *"EMSs see the ED empty in some hours and just for that reason they say let*
16
17 462 *NU patients be admitted" [P3, a nurse].*

19 463 *"The awareness of physicians who don't work in EDs should be raised because*
20
21 464 *some of them try to get rid of patients and refer them to the ED" [P1, a triage*
22
23 465 *nurse].*

26 466 27 28 467 **3. Reforms in payment mechanisms**

29 468 **3.1. Removing financial incentives for admitting NU patients**

30 469 As mentioned in the causes section, financial incentives for physicians have negative effects on
31
32 admitting NU patients to EDs. Admission of patients to the ED should be irrelevant to physicians'
33
34 470 income and this could be inverted effectively on improving quality of care provided by the
35
36 471 physicians. However, policymakers have to look carefully at the role of incentives in motivating
37
38 472 the physicians towards rendering the essential services to patients perfectly:

39 473
40
41 474 *"There should be no relationship between the physicians' income and the*
42
43 475 *hospital admission rate in the ED" [P1, a triage nurse].*

44 476 **3.2. Developing an appropriate payment system**

45 477 The reform of payment system was a solution that the interviewees mentioned. Since physicians
46
47 478 often have a motivation for admitting patients who have NU problems because this has no
48
49 479 significant effect on their income, compared with those with acute conditions, and therefore they
50
51 480 prefer to admit patients with more stable conditions, which has a great effect on the NU visits.

1
2
3 481 *"The policies of a health care system should be tailored ... the patient who*
4
5 482 *needs more care should pay more money" [P2, an EMS].*
6

7 483 **3.3. Receiving higher fees from NU patients**

9 484 When the patients come to the ED with the idea that receiving urgent services in EDs for NU
10
11 485 cases costs more fees than that in other healthcare centers such as clinics, polyclinics, etc., they
12
13 486 will not prefer EDs for receiving care and this has its consequent effect on reducing the number
14
15 487 of NU visits to the ED in both short-term as well as long-term period.

17
18 488 *"NU patients who come to the ED should pay fees from 30% to 40% of total*
19
20 489 *costs [P9, a triage nurse].*

21
22 490 *"In order to prevent NU visits, more co-payment or co-insurance should be paid*
23
24 491 *by NU patients who visit the ED" [P6, a nurse].*
25

26 492

28 493 **4. Organizational arrangements**

30 494 **4.1. Setting up 24-hour and mobile clinics**

31
32 495 Setting up a 24-hour and mobile clinics was also one of the solutions to which some interviewees
33
34 496 referred.

35
36
37 497 *"The 24-hour health centers should be set up. Clinics are just open for up to*
38
39 498 *23:00 p.m. ... Any patient has any problem, e.g. sore throat, will come to the*
40
41 499 *ED directly" [P1, a triage nurse].*
42

43 500 Some of interviewees were not agreed on the establishment of 24-hour clinics. One of them stated
44
45 501 that:

46
47 502 *"Establishing like these clinics are not reasonable because they are not cost-*
48
49 503 *effective" [P3, a nurse].*
50

51 504 Also, we should consider high burden of visits in some days of the year.

52
53 505 *"The clinics should be developed and expanded in order to fit for more patients.*

54
55 506 *During some annual occasions and events, the number of people increases in*
56
57

1
2
3 507 *some places within the country which requires more facilities for providing*
4
5 508 *health services, i.e. 24-hours and mobile clinics. We could visit the patients in*
6
7 509 *the morning or even in the evening” [P9, a triage nurse].*
8

9
10 510 Nevertheless, studies are recommended for determining the volume of visits, referrals and the
11
12 511 need for setting up specialized clinics are essential in order to support evidence-based decisions.

13
14 512 *“Taking turns in the clinics should be strengthened. There is a need to study in*
15
16 513 *this regard, for example, how many neurosurgery patients have referred to the*
17
18 514 *clinic. Night shifts in the clinic should be managed by the new graduates and I*
19
20 515 *think they will also welcome that” [P10, a nurse].*
21

22 516 **4.2. Improving the quality of care in other military hospitals**

23
24 517 Improving quality of care rendered by other military healthcare centers and hospitals can reduce
25
26 518 NU visits in the long run.

27 28 519 **4.3. Strengthening para-clinical departments to perform all diagnostic** 29 30 520 **procedures**

31
32
33 521 The clinic should be strengthened to perform all diagnostic procedures in order to diminish the
34
35 522 referred patients to EDs.

36
37 523 *“The para-clinical system should be strengthened and all diagnostic*
38
39 524 *procedures, such as sonography, should be performed. Para-clinical system*
40
41 525 *shouldn't refer patients to the hospital itself, so it should be strengthened in*
42
43 526 *terms of time, number of visits and personnel. This will lead to patient's*
44
45 527 *confidence” [P8, a nurse].*

46
47 528 *“We had a successful experience, i.e. setting up the wounds clinic in which*
48
49 529 *patients with bedsores, diabetics, etc. have visited. With establishing this clinic,*
50
51 530 *NU visits to the ED have significantly been decreased” [P10, a nurse].*
52

53 54 531 **4.4. Strengthening the referral system**

1
2
3 532 Justifying and rationalizing the referrals from clinics to EDs is another solution, to which the
4
5 533 interviewees referred:

6
7 534 *“Referrals from clinics to EDs should be rational, and this depends on the*
8
9 535 *patient's culture” [P8, a nurse].*

10
11 536 Furthermore, it is important to boost the referral system and implement the program of family
12
13 537 medicine across the country, through which it is expected that NU cases are easily handled by
14
15 538 the family physicians.
16
17

18 539

20 540 **DISCUSSION**

21
22 541 The aim of our study was to explore the causes and consequences of non-urgent visits to
23
24 542 emergency departments in Iran and then suggest solutions from the healthcare providers'
25
26 543 viewpoint. The results showed that NU visits to EDs had several causes with negative
27
28 544 consequences. We identified three overarching themes of causes and consequences NU visits
29
30 545 to EDs and four subsequent solutions.
31
32

33 546 In the present study, the causes of NU visits were categorized into three themes including
34
35 547 specialized ED services, demand-side factors, and supply-side factors. Consequences were also
36
37 548 categorized into three themes; negative consequences on patients, healthcare providers, EDs
38
39 549 and the health system. In addition, potential solutions for preventing and controlling NU visits were
40
41 550 classified into four themes encompassing regulatory plans, awareness-raising plans, payment
42
43 551 mechanism reforms, and organizational arrangements. In this section, the results of the present
44
45 552 study will be discussed and compared with previous studies in the literature.
46
47

48 553 The good accessibility, the well-equipped EDs, the high quality care provided there were
49
50 554 among the reasons for increased NU visits which have been addressed in other studies (26, 27).
51
52 555 In some studies, lack of access to family physicians has been reported as a reason for NU visits
53
54
55
56
57

1
2
3 556 to EDs (28, 29). Although the family physician program in Iran has been implemented since more
4
5 557 than ten years, it didn't become nationwide.
6

7 558 Our study showed that patients prefer to approach to well-equipped centers in order to
8
9 559 receive the required care, and this was consistent by another study (30). Developing para-clinical
10
11 560 departments to perform all diagnostic procedures can reduce the number of NU visits in addition
12
13 561 to conducting need assessment studies and determining the importance of setting up 24-hour
14
15 562 and mobile clinics. Improving the referral system and the quality of care provided by other centers
16
17 563 can also help in control and reduction of NU visits in the long run.
18
19

20 564 Tendency to use the beds of EDs temporarily for admitting to the hospital inpatient
21
22 565 departments is one of the causes of NU visits. To the best of our knowledge and based on the
23
24 566 literature review, we did not find studies that focused on addressing such these problems. This
25
26 567 misuse of EDs' beds till finding a space for the admitted patients can lead to negative
27
28 568 consequences on USU patients and result in financial burdens on the health system as well as
29
30 569 health insurance companies. Like this wastage of resources requires decisive actions from
31
32 570 healthcare managers and policymakers.
33
34

35 571 With regards to our results, low costs which paid by patients might be another reason and
36
37 572 this was in line with the results of preceding studies (31, 32). It is recommended to hike the fees
38
39 573 of services which are provided to NU patients who visit EDs. Crowding in other healthcare centers,
40
41 574 e.g. clinics and physicians' offices, encourages patients to visit EDs for receiving faster care and
42
43 575 this also corresponds other studies conducted in several countries such as in Iran (31), Turkey
44
45 576 (33), Jordan (34), France (35), and the United States (36).
46
47

48 577 Financial incentives given to EMSs was an important cause. In 1991, the fee-for-service
49
50 578 payment policy was proposed by the Minister of Health and Medical Education and was approved
51
52 579 by the Cabinet (37). The evidence showed that this policy had negative consequences such as
53
54 580 providing unnecessary services and admitting more patients and, consequently, imposing
55
56
57
58
59
60

1
2
3 581 additional financial burdens on the health system. The adverse effects of this plan on EDs are
4
5 582 also evident, one of which can be the admission of NU patients.
6

7 583 Special attention should be paid by healthcare managers and policymakers to reforming
8
9 584 the payment mechanism without linking the physicians' income to patients' admission. The fee-
10
11 585 for-service plan has more negative effects not only on the behavior of physicians but also on the
12
13 586 behavior of private centers. So, patients in the private centers could undertake a lot of tests,
14
15 587 images and take several medicines and this in turn yield in creating an inconvenient culture
16
17 588 through expecting receiving similar healthcare services in public hospitals. Therefore, monitoring
18
19 589 physicians' behavior in addition to that of private centers should be performed in order to avoid
20
21 590 their profiteering.
22
23

24 591 Lack of patients' knowledge and awareness of the urgent conditions for referral to EDs
25
26 592 has also been revealed by other studies (38-42). The design and implementation of awareness-
27
28 593 raising plans in EDs as well as in the mass media, schools and universities, social networks,
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30 594 clinics, and healthcare centers can help in promoting the knowledge and awareness of patients
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32 595 and community in general.
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35 596 NU referrals recommended by clinics' physicians, secretaries, and security guards have also its
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37 597 adverse effects which had been discovered by studies in the literature (41, 43, 44). To overcome
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39 598 such referrals, a combination of awareness-raising plans for physicians and other healthcare
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41 599 professionals, empowering triage nurses and EMSs, creating culture of accountability among
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43 600 physicians, and setting rules and regulations to deny NU visits should be considered. Taking
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45 601 punitive measures can be effective against those who try to use kinship relationships and pull
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47 602 strings to admit patients to EDs. This study showed that patients' exaggeration of the severity of
48
49 603 their illness in order to be admitted is one of the reasons of NU visits to EDs, and this was
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51 604 consistent with other studies (45, 46). This matter can be resolved by educating physicians, triage
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53 605 nurses, patients and caregivers, and increasing public awareness. In the awareness-raising
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3 606 plans, the negative effects of NU visits should be well-addressed, so that patients become aware
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5 607 of the adverse effects of such visits. This can act as a factor in reducing NU visits.
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7 608 Designing and implementing of clinical guidelines in EDs is one of the issues that unfortunately
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9 609 have not been considered in Iran. Most physicians are reluctant to use available guidelines.
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11 610 Interestingly, it also seems that senior policymakers are less willing to design and implement
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13 611 guidelines in EDs. It is suggested to do some researches in order to appraise the influence of
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15 612 incentives and punitive rules, improve payment mechanisms, develop patients and providers'
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17 613 awareness-raising plans, and identify factors which affect overcrowding in healthcare centers and
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19 614 EDs. Further quantitative studies should be conducted to determine the consequences of NU
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21 615 visits on crowding and overcrowding in EDs.

616 **Strengths and limitation**

26 617 This study has been conducted as the first qualitative study in Iran for determining causes and
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28 618 consequences of NU visits, as well as for suggesting possible solutions for preventing such visits,
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30 619 which are the strengths of this study. In the present study, expert EMSs and nurses who had in
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32 620 the ED had been also interviewed.

35 621 Interviews were only from providers' perspective while patients were not included. Another
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37 622 prospective study to explore the causes of NU visits from the patients' perspectives is
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39 623 recommended through conducting a qualitative study. Another limitation was the inability of digital
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41 624 recording of interviews due to the refusal of ED's head. However, it was overcome by taking notes
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43 625 during the interviews.

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50 628 **CONCLUSION**

52 629 NU visits to EDs have undesirable consequences on patients, providers, and on the health system
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54 630 as well. It is suggested that policymakers in the health sector should design and implement a

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3 631 combination of solutions categorized into four groups of regulatory plans, awareness-raising
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5 632 plans, payment mechanism reforms, and organizational arrangements. As a long-term strategy,
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7 633 improving the referral system and expanding the family physician program across the country
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9 634 should be considered as a national priority. For the first time in Iran, it is the first study which has
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11 635 proposed solutions for NU visits to EDs. This could be beneficial for evidence-based policy as
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14 636 well as decision making.
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18 638 **Author Contributions**

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20 639 SMM was responsible for the conception, design, implementation, analysis, drafting the
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22 640 manuscript and supervision of the whole process of the study. MB is the principal researcher, who
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24 641 was involved in the conception, development, implementation, data collection, data analysis, and
25
26 642 writing the manuscript. ET and RR were responsible for the intellectual development of the
27
28 643 manuscript. All authors have read and approved the final manuscript.
29

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31
32 645 Not Applicable.
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34 646 **Competing interests**

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37 647 The authors have declared that there is no conflict of interests.
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39 648 **Data sharing statement**

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41 649 Data will not be publicly available. For more information, please contact the corresponding author.
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FIGURES' LEGEND

763 Figure 1. Themes of causes of, and consequences of NU visits

764 Figure 2. Possible solutions for preventing and controlling NU visits to EDs

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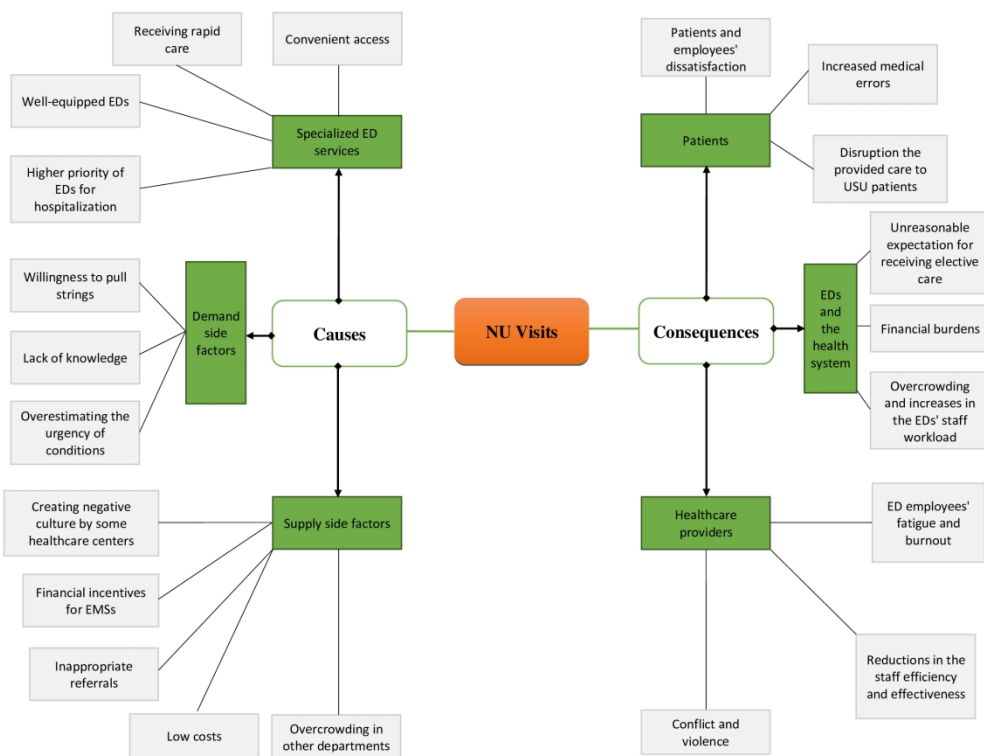


Figure 1. Themes of causes of, and consequences of NU visits

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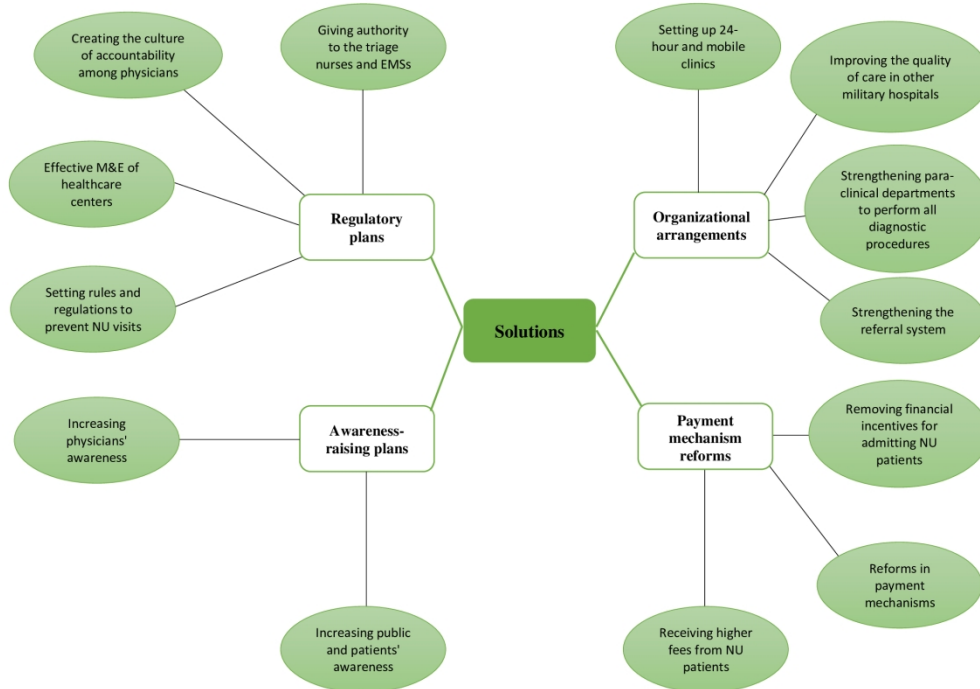


Figure 2. Possible solutions for preventing and controlling NU visits to EDs

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Standards for Reporting Qualitative Research (SRQR)*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

Title and abstract

<p>Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended</p>	2
<p>Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions</p>	2

Introduction

<p>Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	2
<p>Purpose or research question - Purpose of the study and specific objectives or questions</p>	3

Methods

<p>Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**</p>	3
<p>Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability</p>	3
<p>Context - Setting/site and salient contextual factors; rationale**</p>	3
<p>Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**</p>	3
<p>Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues</p>	4
<p>Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**</p>	3

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2	Data collection instruments and technologies - Description of instruments (e.g.,	
3	interview guides, questionnaires) and devices (e.g., audio recorders) used for data	
4	collection; if/how the instrument(s) changed over the course of the study	3
5		
6	Units of study - Number and relevant characteristics of participants, documents,	
7	or events included in the study; level of participation (could be reported in results)	3
8		
9	Data processing - Methods for processing data prior to and during analysis,	
10	including transcription, data entry, data management and security, verification of	
11	data integrity, data coding, and anonymization/de-identification of excerpts	3
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13	Data analysis - Process by which inferences, themes, etc., were identified and	
14	developed, including the researchers involved in data analysis; usually references a	
15	specific paradigm or approach; rationale**	3
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17	Techniques to enhance trustworthiness - Techniques to enhance trustworthiness	
18	and credibility of data analysis (e.g., member checking, audit trail, triangulation);	
19	rationale**	3
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Results/findings

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23	Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and	
24	themes); might include development of a theory or model, or integration with	
25	prior research or theory	4
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27	Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts,	
28	photographs) to substantiate analytic findings	4-12
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Discussion

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32	Integration with prior work, implications, transferability, and contribution(s) to	
33	the field - Short summary of main findings; explanation of how findings and	
34	conclusions connect to, support, elaborate on, or challenge conclusions of earlier	
35	scholarship; discussion of scope of application/generalizability; identification of	
36	unique contribution(s) to scholarship in a discipline or field	12-14
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38	Limitations - Trustworthiness and limitations of findings	14
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Other

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42	Conflicts of interest - Potential sources of influence or perceived influence on	
43	study conduct and conclusions; how these were managed	15
44		
45	Funding - Sources of funding and other support; role of funders in data collection,	
46	interpretation, and reporting	15
47		

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

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**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

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