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Developing a minimum data set of psychiatric emergency record

Zahra Ebnehoseini[1]; *Marziyhe Meraji[2]; Amir Rezaei Ardani[3]; Farzad Akbarzadeh[4]; Malihe Irajzade[5]

[1]*Ph.D. of medical informatics, Mashhad University of Medical Sciences, Mashhad, Iran.*
[2]*Assistant professor of health information management, Department of Health Information Technology, School of Paramedical Sciences, Mashhad University of Medical Sciences, Mashhad, Iran.*
[3]*Associate professor of psychiatry, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.*
[4]*Assistant professor of psychiatry, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.*
[5]*MSc. in clinical psychology, Mashhad University of Medical Sciences, Mashhad, Iran.*

Abstract

Introduction: Psychiatric emergencies are acute mental health, behavioral, and social disorders requiring immediate intervention. The primary role of psychiatric emergency services is to provide mental health services for eligible patients. This study aimed to design a Minimum Data Set (MDS) for emergency psychiatry.

Materials and Methods: A comprehensive Grey Literature review was conducted in Iran, the United States, Australia, and England to identify sets of data elements for psychiatric emergencies in April 2019. Three psychiatric MSDs, two psychiatric emergency guidelines, and five psychiatric record forms were identified. Then, the identified data elements were extracted and categorized. An expert panel assessed the face validity. The content validity of a set of data elements and the clinical importance of data elements in emergency psychiatry were evaluated. Data elements that received a score of 4-5 from 79% of the specialists remained in the study.

Results: Out of a total of 93 identified data elements, 53 were considered essential data elements for MDS of emergency psychiatry. The data elements were categorized as follows: Socio-demographic data, psychiatric history, family psychiatric history, medical history, mental health/ psychiatric status, suicidal risk and harm risk for others, and diagnosis and treatment.

Conclusion: Given the importance of psychiatric disorders and the lack of a national system for gathering psychiatric information, performing the same study on psychiatric data elements is essential. The findings of this study can be applied to design psychiatric emergency forms and accurate and complete data gathering in psychiatric records.

Keywords: Emergency services, Medical records, Mental disorders, Minimum data set, Psychiatric

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***Corresponding Author:**
Department of Health Information Technology, School of Paramedical Sciences, Mashhad University of Medical Sciences, Mashhad, Iran.
merajim1@mums.ac.ir
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Introduction

Mental disorders encompass diverse conditions, primarily impairing cognition, emotion, and behavioral control. According to the World Health Organization report, mental disorders have a high aggregate prevalence in all countries where epidemiology has been investigated (1). The results of a systematic review and meta-analysis over the period 1980-2013 indicated that approximately 1 in 5 respondents were recognized as meeting the criteria for a common mental disorder one year ago. Around one-third of the respondents experienced a common mental disorder during their lifetimes (2).

Another meta-analysis estimated that about 27% of the adult European population (18-65 years old) had been faced with at least one mental disorder in the past 12 months (3). The global prevalence of mental health issues estimate during COVID-19 was 28.0% for depression; 26.9% for anxiety; 24.1% for post-traumatic stress symptoms; 36.5% for stress; 50.0% for psychological distress; and 27.6% for sleep problems (4).

The prevalence rate of psychiatric disorders in Iran was estimated at 21.5% (27.6% female and 14.7% male) in 2014 by Noorbala and Akhondzadeh. They believed that psychiatric disorders have a growing trend in Iran and the particular focus on mental health disorders seems necessary (5). In addition, the prevalence of psychiatric disorders was 31.03% depending on screening in the general population and 25.42% depending on the clinical interview in 2020 (6). Therefore, hospitals and other healthcare facilities will face more patients.

A psychiatric emergency refers to changes in a patient's behavior that put them or others at risk and need immediate medical intervention (7). The primary role of specialists in psychiatric emergency rooms is to provide emergency psychiatric services for patients with acute psychiatric problems. After the patients have become stable, they transfer to continue treatment in routine mental health departments. Providing emergency psychiatric services to patients without urgent problems constrains the resources available for eligible patients.

As well, it imposes a significant economic burden on the healthcare system. Effective triage is one of the quality indicators of emergency psychiatric services which can recognize urgent or no urgent patients (8). For example, anxiety symptoms are one of the main reasons for encountering psychiatric emergencies. Patients have heart arrhythmias, respiratory failure, pulmonary embolism thrombus, and anemia. An emergency psychiatrist should recognize that anxiety symptoms respond to an organic condition or anxiety disorder symptoms (9). Many demands in psychiatric emergency rooms make a challenging environment for health care providers that may lead to inaccurate diagnoses, poor treatment outcomes, and overuse of the most expensive health services (10). Therefore, a Minimum Data Set (MDS) as a standard tool is helpful for a valid, complete, reliable, and relevant data collection (11). The MDS is a conceptual framework containing main data elements and definitions related to special health care services (12). A national MDS is a national agreement to collect uniform data (13). In addition, the MDS encompasses socio-demographic information (e.g., demographics, referral, and follow-up) and clinical information (e.g., treatment progress, risk factors, and output of care and complications) (12). Developing an MDS for patients with a mental health disorder with complex needs can lead to collaborating, coordinated, and integrated health services (14).

Several studies and initiatives were conducted to develop MDS in mental health. However, there are very few studies on MDS in mental health in the Iranian population. For example, the comparative study of data elements in psychiatric history and assessment forms was conducted by Rezaei Ardani et al. (15). However, in the study by Lotfnezhad et al., a national mental health registry system in Iran was not seen. In addition, mental health information management in Iran faces serious problems, including control and prevention of the mental health disorders, performing epidemiological research, developing policies and strategies for controlling the costs of mental health disorders, and improving the quality of life of the patients with mental health disorder (16).

Given the high prevalence and the growing trend of mental disorders, the current study was conducted with a particular focus on psychiatric emergencies—this study aimed at developing an MSD for psychiatric emergency records.

Materials and Methods

This cross-sectional study performed from March to June 2019. The study was supported by Mashhad University of Medical Sciences (research plan code: 931145). It was approved by the ethical committee of Mashhad University of Medical Sciences (Ethical code: IR.MUMS.REC.1394.774).

This study was performed in four steps as follows:

Step 1

In the first step, a comprehensive Grey literature review was conducted to identify sets of data elements for psychiatric emergencies. Grey literature is a "field in library and information science that deals with the production, distribution, and access to multiple document types produced on all levels of government, academics, business, and organization in electronic and print formats not controlled by commercial publishing where publishing is not the primary activity of the producing body" (17). This study aimed to identify emergency guidelines, psychiatric MSDs, as well as the forms of psychiatric emergency records. These resources are primarily found in Grey literature based on the research team agreement, and in our previous paper (15), America, England, and Australia, countries with similar medical and educational structures to Iran, were selected for data searching. Systematically identifying Grey literature is not a straightforward task. However, there are many methods, including searching peer-reviewed and Grey literature databases, conducting structured searches of relevant websites and search engines, and contacting relevant experts (18). In the current study, based on Adams et al. recommendation to search for relevant Grey literature, we searched the websites of relevant organizations in selected countries (e.g., https://meteor.aihw.gov.au, and a popular internet search engine (i.e., www.google.com) in April 2019 (18).

In this step, three psychiatric MSDs (19-21), two psychiatric emergency guidelines (22,23), and five psychiatric record forms (24-28) were identified. First, the psychiatric MSDs were identified, including "Australian National health data dictionary" (19), "Admitted patient mental health care national MDS", and (20) "Mental Health Minimum Dataset version for England" (21).

Psychiatric MSDs

"Australian National Health Data Dictionary" was created by the Australian Institute of Health and Welfare Canberra in 2003; that encompass essential data element in mental health such as admission date, area of usual residence, care type, country of birth, date of birth, principal diagnosis, and full psychiatric care days. For each data, element attributes were determined by admin status, metadata type, start date, scope, statistical units, collection methodology, national reporting, arrangements, and periods for which data are collected nationally (19). "Admitted patient mental health care national MDS" is a core set of data elements for admitted patient mental health care in hospitals. This data set was developed by the national health information management group for mandatory collection and reporting of mental health care at a national level in 2010 and updated in 2011. Identifying and definitional attributes, value domain, and usage obligation were determined in this MDS (20). "Mental health MDS" was suggested by the health and social care information center in England in 2005. This MDS encompasses four sections. Section 1 covers the data items that need to be recorded about patients of specialist mental health services, including inpatient, outpatient, community care, and residential services. In section 2, the listed data items are the minimum needed to meet provider and ministry of health requirements. Section 3 guides how to gather and report the required data items. Section 4 lists the data items which make up the Mental MDS and determines who is expected to collect the data (21).

Psychiatric emergencies guidelines

Two minimum data set was identified as follows: "Psychiatric emergency room survival guide" (23) and "Supporting psychiatric assessments in emergency rooms guideline" (22).

The "Psychiatric emergency room survival guide" is a guideline that was developed by Upstate Medical University in New York. This guide consists of one recommended approach for emergency psychiatry training objectives (i.e., prioritization skills, assessment and diagnostic skills, treatment plan, management, communi-cations skills, medico-legal skills) and general documentation principles (23).

The guideline of "Supporting psychiatric assessments in emergency rooms" is a prototype

system created by an expert panel team at a university in Albany. This prototype system provides descriptive profiles for a patient in nine categories: danger to self, danger to others, mental health status, functional impairment, substance abuse, environmental factors, the potential benefit from treatment, client/family preferences, and availability of outpatient services. These profiles are generated from users' answers to a set of seventy-three questions about the patient (22).

Psychiatric record forms

Five medical record forms related to the psychiatric emergency were identified, including "Psychiatric inpatient initial admission request form" (24), "Psychiatric unit criteria worksheet" (28), "Medical history sheet for psychiatry patients" (27), "Psychiatry form" (25), "Unit summary sheet for psychiatry patients" (26).

"Psychiatric inpatient initial admission request form" was developed by the American Medical Association and Texas Medicaid and Healthcare Partnership which encompass six categories of data elements: identifying information, other related clinical information, present and past drug\alcohol usage, psychiatric medication, past psychiatric treatment, and current diagnosis (24).

"Psychiatric unit criteria work sheet" was created by the department of health and human services centers for Medicare and Medicaid Services. This form has two parts: socio-demographic information and all criteria must be met for exclusion from Medicare's hospital prospective payment system (28).

"Psychiatric form", "Summary of psychiatric record", and "Summary of psychiatric records" were developed by Ministry of Health of Iran. The form of "Medical history sheet for psychiatry patients" contained 20 categories of data elements, including date of admission to the ward, patient's name, age, marital status, religion, method of referral, referred by who, educational status, occupation, period of unemployment, family history of mental illness, number of live children born in the family, number of twins, several children in the family, number of patient's children, previous encounters, diagnosis, treatment plan, and outcome of the disease (27).

"Psychiatry form" includes the following categories of data elements: demographic information, chief complaint, diagnosis, treatment procedures, results of the para clinical procedure, disease progress, patient status when discharged from the hospital, post-discharge recommendations, and name and signature of the psychiatrist (25,30).

"Unit summary sheet for psychiatry patients" form includes demographic information, patient history, and signature of psychologist and psychiatrist (26).

Step 2

In the second step, the identified data elements in step 1 were extracted from the resources and categorized independently by two researchers. The results were saved in two excel files separately. Then, two excel files were combined in expert panel meetings held by two researchers. A third researcher discussed about unresolved disagreements.

Step 3

In the third step, an expert panel of medical informatics, health management, and psychiatrist assessed the face validity of the common data elements. Then, the data elements in each category were discussed with the expert panel, the agreement was reached by consensus, and editing was ensured. As well, the evaluation measures with similar concepts were integrated. Then, the data elements that acquired agreement were included in the MSD.

Step 4

In the fourth step, the content validity of a set of data elements were determined by psychiatrists and psychologists specialists. At least five specialists are recommended to the participant expert panel (29). In the current study, an expert panel consisting of 16 psychiatrists and psychologists assessed the content validity of psychiatric emergencies MDS, and the clinical importance of the psychiatric emergency data elements were determined based on the perspective of specialists. The specialists could also propose data elements that did not exist in the set of data elements. A Likert-type scale was used to evaluate the importance of the set of data elements. The specialists assigned a value of 1-5 (not important, of minor importance, of average importance, very important, and absolutely important) for each data element. The rate of specialist's agreement means for each data elements were calculated and reported by descriptive statists. Judgment on each data element is made as follows: data elements that

received a score of 4-5 from more than 79% of the specialists were considered data elements of a psychiatric emergency. Data elements that received a score of 4-5 from 70-79% of the specialists and proposed data elements specialists were reassessed in an expert panel by the research team. Data elements that received a score of 4-5, less than 70% of the specialists, were eliminated from the study (30).

Results

In total, 129 data elements were extracted from identified literature and categorized into seven groups. In the face validity step, 36 data elements were excluded, combined with other data elements by an expert panel, and 93 data elements remained in the study.

Nine psychiatrists and seven psychologists for evaluating content validity participated in the second expert panel. The mean of work experience of specialists was 16 years. The range of work experience was 2-25 years. Table 1 shows the specialists' characteristics. In this step, 40 data elements that received a score of 4-5, less than 70% of the specialists were eliminated from the study, and 53 data elements remained in the study as follows: 38 data elements that received a score of 4-5 more than 79% of the specialists. Fifteen data elements received a score of 4-5 from 70-79% of the specialists, reassessed in the expert panel, and remained in the study. The main categories of 53 data elements for MDS of psychiatric emergencies were as follows:

Sociodemographic data (n= 6), psychiatric history (n= 9), family psychiatric history (n= 3), medical history (n= 1), mental health/ psychiatric status (n= 19), suicidal risk and harm risk for others (n= 12), and diagnosis and treatment (n= 3). Table 2 shows data elements for MDS of psychiatric emergencies.

Table 1. The participants' characteristics in the expert panel

Faculty status	Faculty member	8	50%
	Non-faculty member	8	50%
Employment status	Temporary	6	38%
	Permanent	10	62%
Level of education	Doctorate degree	9	56%
	Masters' degree	4	25%
	Bachelors' degree	3	19%
Major	Psychiatrists	9	56%
	Psychologists	7	44%

Table 2. Data elements of *psychiatric* MDS and the mean of specialist's agreement

Dimensions (the rate of specialist's agreement)	**Data elements**
Sociodemographic data (87.5%)	Patient name and family name (100%), age (87.5%), gender (87.5%), medical record number (100%), literacy (75%), and marital status (75%)
Psychiatric history (79%)	Suicide history (87.50%), history of drug and substance abuse (87.50%), history of rape (87.50%), history of hospitalizations and reason for same (81.25%), history of previous mental disorders (81.25%), psychiatric diagnostic history (75%), history of admission to psychiatric emergencies or receiving psychiatric treatment over past year (75%), history of domestic violence (75%), and history of child abuse (75%)
Family psychiatric history (77.08%)	Family history of suicide (81.25%), family history of mental disorders (75%) and family history of drug and substance abuse (75%)
Medical history (81.25%)	Drug allergies (81.25%).
Mental health/ psychiatric status (82%)	Reason for referral (93%), ability to communicate with the environment and people (93%), ability to perform activities of daily living by the patient (such as eating, wearing) (87.50%), patient behavior and attitude (87.50%), hallucinations (87.50%), agitation (87.50%), anxiety (87.50%), patient appearance (81.25%), patient hygiene status (81.25%), decreased body movements, poor tone of voice or low speech (81.25%), functional impairment (81.25%), lack of insight about mental health disorder (81.25%), hopelessness (81.25%), current living arrangement (single, with parents or family, groups, and unknown) (81.25%), patient attitude to psychiatric interview and interviewer, and rate of cooperation with interviewer (75%), existence of high levels of anxiety or supportive living environment (75%), anger, rage, and hostility (75%), confusion and lack of orientation in time and space (75%), and existence of social support (75%)
Suicidal risk and harm risk for others (95%)	Suicidal ideation present (100%), self-harm ideation present (100%), self-harm program (100%), attempted self-harm (100%), attempted suicide (100%), performing unconscious self-injurious acts by patient (100%), availability of common tools for suicide (e.g. guns, drugs) (100%), threatening harm to specific person (100%), reason for living/ reason for dying (93%), aggressive and violent behavior to others at the examination session (93%), hostility and humiliation of others (81.25%), and injury to animals (75%)
Diagnosis and treatment (85.21%)	Psychiatric drugs (87.50%), diagnosis of mental disorder (81.25%), and treatment plan (75%)

Discussion

The current study suggested an MDS based on validated guidelines and related psychiatric record forms for psychiatric emergency records. The MDS was evaluated and validated by Iranian psychiatrists and psychologists. Therefore, the suggested MDS applies to the Iranian population.

In the present study, "Australian national MDS", "National health data dictionary", and "Mental health MDS" as psychiatric MSDs were identified that focused on whole data elements for mental health disorders and were customized for the Australian and England populations. The suggested MDS for a psychiatric emergency in the current study focused on psychiatric emergencies and did not support all clinical processes in the psychiatric emergency room, and the data elements for the psychiatric emergency were extracted from these guidelines. As well, it was developed for the Iranian population. In addition, five medical record forms related to the psychiatric emergency were identified in the current study. "Psychiatric inpatient initial admission request form" and "Psychiatric unit criteria worksheet" encompass necessary data elements for initial mental health care services for inpatient mental disorders.

The above forms focus on gathering data in the psychiatric emergency but were not developed for the Iranian population. Three Iranian medical record forms were also identified in the current study. These forms were general psychiatric forms that did not focus on essential data elements in a psychiatric emergency.

The present results showed that the data elements of the "self-harm and suicide risk" category were the most important data elements in the psychiatric emergency record based on the participated specialist's perspective. In line with our findings, a study about characteristics of psychiatric emergencies revealed that "protection from danger to self" was named most frequently as the purpose of the admission (31).

A systematic review was conducted by Chennapan et al. about the medical screening of mental health patients in the emergency. This study showed that for a patient with a known psychiatric disease presenting with symptom exacerbation, medical screening should include a complete medical and psychiatric history, a targeted physical examination, and a mental status examination (32). The results of another systematic review about instruments to identify mental health and substance use problems among children in the emergency department showed that identifying suicide risk instruments was the most frequently used tool in emergency (33). Hal et al. stated that the existence of psychiatric illness is a potent risk factor for suicide attempts. Major persons who attempt suicide have symptoms of severe psychiatric illness (34). Therefore, all admitted patients in a psychiatric emergency room need to be examined for suicidal ideation as a part of routine assessment (35). In addition, in our study, "Mental health/ psychiatric status" was one of the most important categories of MDS for the psychiatric emergency records. Manley states that "the mental status examination of psychiatric patients is analogous to the physical examination in physical medicine. It provides a format for systematically observing and recording information about a person's thinking, emotions, and behavior. These data and information from the history are the basis for formulating a differential diagnosis" (36).

A study investigated suicide risks based on fifteen psychiatric providers who work in the emergency room.

The results indicated that the existing electronic health record was not efficient and sufficiently informative for suicide risks (37). Furthermore, Mahal et al. evaluated the documentation quality of suicide risk assessments in psychiatric emergency rooms. The results revealed that many important suicide risk factors were not documented in the psychiatric emergency records. Furthermore, they believed that poor documentation in the psychiatric emergency records has adverse treatment and medico-legal consequences (38).

Therefore, we suggest developing and using MDS research in the future. The suggested MDS of psychiatric emergency in the current study was evaluated and validated by psychiatrists and psychologists who worked at Mashhad University of Medicine Sciences. Therefore, we suggest the common study conducted in another university of medical sciences.

Also, we suggest developing a MDS of psychiatric emergencies at the national level and holding the training courses about MDS of psychiatric emergencies.

Conclusion

A customized Minimum Data Set (MDS) of psychiatric emergency as a tool for gathering necessary data elements was developed in the present study. The results can be used as a base to design psychiatric emergency forms. The comprehensive psychiatric emergency forms can help specialists in the psychiatric emergency rooms to identify eligible patients with acute psychiatric problems.

Moreover, they can refer patients without acute psychiatric problems to routine mental health services.

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