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## INDEX

### EDITORIAL

The Intersection of the COVID-19 Pandemic and Population Health  
Ferry Efendi S867

### ORIGINAL ARTICLES

Mental health management in online learning media during the COVID-19 pandemic for students at private  
Ade Irma Suryani, Linardita Ferial, Kustia Anggereni, Febri Maryani, Annysa Nur Mala Sari S869

Home contact support in prevention of transmission of tuberculosis in west Lombok based on the theory  
of the health belief model  
Agus Supinganto, Ni Ketut Metri, Irwan Budiana, Suharmanto Suharmanto S875

Self-efficacy and COVID-19 prevention behaviour among adolescents: A cross-sectional study  
Anggraini Dwi Kurnia, Evita Rohmaniah, Nur Lailatul Masrurroh, Nur Melizza, Yoyok Bakti Prasetyo,  
Dewi Rury Arindari S882

Comparison of knowledge of mothers with stunted and severely stunted toddlers before and after education  
with brainstorming and audiovisual methods  
Roosi Rachma Kemala, Ayling Sanjaya S890

Sustainable services for the elderly in Malang city: A qualitative study  
Cici Indah Setiowati, Yati Sri Hayati, Nurul Muslihah S896

Correlation of self-efficacy and self-management among patients undergoing hemodialysis with  
intradialytic hypertension complications  
Dhian Luluh Rohmawati, Nymas Khoriah Fadhlika, Rony Tri Hantoro S905

The effect of maternal role identity application on cognitive development in stunting children  
aged 1-3 years in a public health center  
Diyah Arini, Nursalam Nursalam, Mahmudah Mahmudah, Esti Yunita Sari, Fatimah Dwi Cahyani S913

The experience of nurses conducting nursing assessments of occupational diseases in the farm: A  
phenomenological study  
Eko Prasetya Widiyanto, Arista Maisyaroh, Rizeki Dwi Fibriansari S921

Relationship between stigma and quality of life in people with pulmonary tuberculosis in East Java, Indonesia  
Eppy Setiyowati, Erika Martining Wardani, Nur Ainiyah, Siti Damawiyah, Ni Njoman Juliasih S928

Synthesis of manganese nanoparticles of Oolong tea extract by sonication method for a natural oral contrast  
media on magnetic resonance cholangiopancreatography  
Fatimah Fatimah, Neni Susilaningsih, Hermina Sukmaningtyas, Agus Subagio S936

Factor analysis of the exile of women giving birth in the Forest Fenita Purnama Sari Indah, Riris Andriati, Rita Dwi Pratiwi, Nurwulan Adi Ismaya, Ika Rohmawati	S944
Milieu therapy based on local virtue influence on community acceptance on post restriction mental disorder patients at home Ganif Djuwadi, Dyah Widodo	S951
Perceived constraints and impacts of online learning experiences by Indonesian university students during COVID-19 Devia Putri Lenggogeni, Hema Malini, Dewi Eka Putri, Bunga Permata Wenny	S957
Effect of Aloe vera gel on wound healing process for diabetic foot ulcers: A pilot study Hema Malini, Yance Komela Sari, Elvi Oktorina	S967
Coping strategies of healthcare providers on social stigma due to COVID-19 using the Roy adaptation model approach Ana Zakiyah, Ika Ainur Rofi'ah, Enny Virda Yuniarti, Arief Andriyanto	S974
Experience of Kaili Community in reducing pain and swelling because of filariasis disease Irsanty Collein, Aminuddin Aminuddin, Andi Fatmawati Syamsu, Dafrosia Darmi Manggasa	S981
Knowledge and reliance on the availability of voluntary counseling and testing (VCT) services relating to the utilization of VCT services by the Man who has Sex with Man community Isna Ovari, Silvia Nora Anggreini, Fitra Wahyuni, Rina Novita	S990
Phytochemical screening, stability test formulation and physical gel ethanol extract of <i>Jatropha</i> leaves ( <i>Jatropha curcas L.</i> ) as a gel compress preparation for post-ischemic stroke patients Luluk Widarti, Suprianto Suprianto, Siti Maimuna	S997
The influence of religious coping on family resilience in communicating and solving problems during the COVID-19 pandemic Yoyok Bekti Prasetyo, Faridi Faridi, Nur Lailatul Masruroh, Nur Melizza, Muhammad Hafiz Maulana	S1011
Relationship between exclusive breastfeeding and stunting among children aged 2-5 years in Indonesia Nurus Safaah, Esti Yunitasari, Ferry Efendi, Sunanita Sunanita, Suhartono Suhartono	S1019
An analysis of elderly experience using the GALASEMA application Pepin Nahariani, Shanti Rosmaharani, I'in Noviana, Ririn Probowati	S1025
The relationship between workload and nurses' performance in carrying out nursing care in inpatient at Hospital, Riau Province, Indonesia Ennimay Ennimay, Raja Fitriana Lestari, Nancy Hidayah Oktari	S1031
Psychological experience of women post total abdominal hysterectomy bilateral salpingo-oophorectomy Ramdya Akbar Tukan	S1038
Web-Based public health center management information system using Codeigneter and Ajax techniques at Public Health Canter Reno Renaldi, Yesica Devis, Lita Lita, Muhammad Dedi Widodo, Rizer Fahlepi	S1046
The effect of warm ginger on the frequency of nausea and vomiting among pregnancy women Ririn Ariyanti, Selvia Febrianti, Zulfa Rahmalia Khariani, Tantry Sulistyowati	S1054
Effectiveness of 3D Pageflip Professional electronic module to prevent urolithiasis recurrent among urolithiasis patients Riris Andriati, Tukimin bin Sansuwito, Kosheila Ramuni, Bibi Florina Abdullah	S1060
The relationship of skin integrity picture in stroke patients with the use of anti-decubitus mats at Hospital Aulia Asman, Sena Wahyu Purwanza, Ainul Mufidah, Ida Yanriatutid, Yulian Heiwer Matongka, Estelle Lilian Mua, Robi Adikari Sekeon, Meilin Anggreyni, Denny Susanto	S1068
The role of C-Reactive Protein in the level severity of hyperemesis gravidarum Ni Made Rosiyana, M. Aryadi Arsyad, Saidah Syamsuddin, Ni Luh Emilia, Estelle Lilian Mua, Robi Adikari Sekeon, Meilin Anggreyni, Suratno Kaluku, Bayu Azhar, Sena Wahyu Purwanza	S1074
The effect of progressive muscle relaxation therapy on anxiety of hemodialysis patients in Pekanbaru, Indonesia Silvia Nora Anggraini, Awaliyah Ulfah Ayudytha Ezdha, Dwi Elka Fitri, Isna Ovari, Lita Lita, Nanda Oktaviani	S1081

- Learning experience about human anatomy of health students during the pandemic COVID-19:  
A phenomenological study  
Siska Mayang Sari, Rani Lisa Indra, Rian Ordila, Sekani Niriyah, Raja Fitriana Lestari, T. Abdur Rasyid,  
Fadli Anggara S1087
- Live experience of people with diabetes mellitus on self-management during COVID-19 in remote a  
rea of Indonesia  
Angelina Roida Eka, Lusia Henny Mariati, Maria Getrida Simon, Claudia Fariday Dewi, Kornelia  
Romana Iwa, Fransiska Yuniati Demang, Yohana Hepilita, Yuliana Reginaldis Rosali Krowa S1094
- Effect of the standard operating procedure Box Method to increase self-confidence and basic nursing skills  
of nursing students during the COVID-19 pandemic  
Lidwina Dewiyanti Wea, Paskaliana Hilpriska Danal, Oliva Suyen Ningsih S1101
- Risk factors of increased blood pressure among adolescents in rural areas of Indonesia  
Oliva Suyen Ningsih, Lidwina Dewiyanti Wea, Heribertus Handi S1108
- The correlation between working shifts and nurse's motivation in the implementation of handover in the  
surgical documentation room  
Susi Erianti, Asfeni Asfeni, Cut Siti Nurhafiza S1114
- Correlation between parental verbal violence behaviour and the aggressiveness of adolescents  
Sylvi Harmiardillah, Dadang Kusbiantoro, Nurul Hikmatul Qowi, Trijati Puspita Lestari, Nur Hidayati,  
Tri Indra Aji Putra S1119
- Optimizing shift scheduling and work-life balance to improve job satisfaction among female nurses  
Tita Rohita, Nursalam Nursalam, Krisna Yetti, Kuntarti Kuntarti, Dedeng Nurkholi, Idyatul Hasanah S1126
- Differences in extraction methods to antidiarrheal activity in vitro and in vivo in unripe Kayu banana fruit  
(*Musa paradisiaca* L. Var. Kayu)  
Arista Wahyu Ningsih, Edo Pratama, Siti Komariyah, Diah Putri Astuti, Ivan Charles S. Klau, Dewi Rahmawati S1133
- Relationship between cholesterol levels and smoking behavior among active smokers  
Farida Anwari, Martina Kurnia Rohma, Acivrida Mega Charisma, Iif Hanifa Nurrosyidah, Arif Rahman  
Nurdianto, Galih Satrio Putra, Dimas Dimas S1147
- Antibacterial activity of Indonesian Bidara Upas Tuber (*Merremia Mammosa* L.) against pathogen bacteria  
Iif Hanifa Nurrosyidah, Ervina Oktalia Eka Saputri, Sayyidah Mufidatunnisa, Farida Anwari,  
Arista Wahyu Ningsih S1153
- Immunomodulator activity test of ethanol extract of Sappan Wood (*Caesalpinia Sappan* L.) in mice (*Mus  
Musculus*) infected by *Staphylococcus aureus*  
Martina Kurnia Rohmah, Farida Anwari, Arif Rahman Nurdianto, Elisa Dwi Febrianti, Juvita Anggraini,  
Arista Wahyu Ningsih S1160
- Family support and peer support related to the physical activity of the prospective bride and groom  
Wiwit Kurniawati, Yati Afyanti, Asa Akmelia, Neni Fidyasanti S1169
- The effectiveness of mindfulness-based stress reduction on parental stress during COVID-19 pandemic: A randomized  
controlled trial  
Yurike Septianingrum, Febta Lifga Arnowi, Chilyatiz Zahroh, Siti Nur Hasina, Andikawati Fitriasisari, Nety Mawarda  
Hatmanti, Erika Martining Wardani, Siti Damawiyah S1175
- REVIEW ARTICLES
- Impact of diabetes self-management education in middle-aged patients with type 2 diabetes mellitus:  
A systematic review  
Emilia Erningwati Akoit, Ferry Efendi, Yulis Setiya Dewi S1183
- Factors of medication adherence among adult patients with tuberculosis: A literature review  
Farida Nur Qomariyah, Lukawee Piyabanditkul, Donwiwat Saansom S1196
- Relationship quality of nursing work life and burnout among nurses: A systematic review  
Tita Rohita, Nursalam Nursalam, Muhammad Hadi, Ferry Efendi, Dedeng Nurkholik, Idyatul Hasanah S1205
- The effectiveness and usability of electronic partograph for obstetric care: A systematic review  
Widya Maya Ningrum, Rahayu Budi Utami, Yeny Ristaning Belawati, Tita Rohita, Kurniati Devi Purnamasari S1215

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## The Intersection of the COVID-19 Pandemic and Population Health

Ferry Efendi

Invited Editor

The world has witnessed the great impact of the novel coronavirus disease 2019 (COVID-19) on all aspects of population health. The ongoing coronavirus pandemic remains uncertain when it comes to ending or shifting into endemic status. Communicable disease hit back the world while the non-communicable disease remains a big challenge. Some countries have opened their borders and exercised relaxation in several sectors, including the mobility of people. The current pandemic provides an opportunity to reflect on the status of the healthy population and how research interplays within society.

Some countries have made Universal Health Coverage (UHC) and created significant progress in good health for all through Sustainable Development Goals (SDGs). Indonesia as one of the middle-income countries has committed to support and sustain the global agenda including UHC and SDGs. The double burden of disease for both communicable and non-communicable diseases remain a huge challenge that requires a big investment in research and development.

Stroke, ischemic heart disease, diabetes, cirrhosis, and tuberculosis were among the top five killers in Indonesia. Numerous health development initiatives have been undertaken to target all populations. In addition, stressing greater access to services, quality, comprehensive, and integrated health services for women, children, and adolescents also requires equal priority.

The current special issue examines the various areas of health issues which focuses on medicine and the health sciences to address health problems. This supplement has 46 manuscripts that present multidisciplinary healthcare settings, including stunting, diabetes mellitus, COVID-19, stroke, hyperemesis gravidarum, hypertension, nursing management, smoking behaviour, tuberculosis, education, kidney disease, mental disorder, HIV/AIDS, and complementary therapy. All manuscripts in these supplements are written in English. We hope that the research results presented in these articles will strengthen the development of health research and contribute to improving the health of a population.

## La intersección de la pandemia de COVID-19 y la salud de la población

Ferry Efendi

Editor Invitado

El mundo ha sido testigo del gran impacto de la enfermedad del nuevo coronavirus 2019 (COVID-19) en todos los aspectos de la salud de la población. La pandemia de coronavirus en curso sigue siendo incierta cuando se trata de terminar o cambiar a un estado endémico. Las enfermedades transmisibles devolvieron el golpe al mundo, mientras que las enfermedades no transmisibles siguen siendo un gran desafío. Algunos países han abierto sus fronteras y ejercen la relajación en varios sectores, incluido el de la movilidad de las personas. La pandemia actual brinda la oportunidad de reflexionar sobre el estado de salud de la población y cómo la investigación interactúa dentro de la sociedad.

Algunos países han logrado la Cobertura Universal de Salud (UHC) y crean un progreso significativo de buena salud para todos a través de los Objetivos de Desarrollo Sostenible (ODS). Indonesia, como uno de los países de ingresos medios, se ha comprometido a apoyar y sostener la agenda global, incluidos la UHC y los ODS. La doble carga de morbilidad, tanto para las enfermedades transmisibles como para las no transmisibles, sigue siendo un gran desafío que requiere una gran inversión en investigación y desarrollo. Los accidentes cerebrovasculares,

la cardiopatía isquémica, la diabetes, la cirrosis y la tuberculosis se encuentran entre las cinco principales causas de muerte en Indonesia. Se han emprendido numerosas iniciativas de desarrollo de la salud dirigidas a toda la población. Además, enfatizar un mayor acceso a los servicios, servicios de salud de calidad, integrales e integrados para mujeres, niños y adolescentes también requieren igual prioridad.

El número especial actual examina las diversas áreas de los problemas de salud y se centra en la medicina y las ciencias de la salud para abordar los problemas de salud. Este suplemento tiene 46 manuscritos que presentan entornos multidisciplinarios de atención de la salud, incluidos retraso en el crecimiento, diabetes mellitus, COVID-19, accidente cerebrovascular, hiperémesis gravídica, hipertensión, manejo de enfermería, tabaquismo, tuberculosis, educación, enfermedad renal, trastorno mental, VIH/SIDA y terapia complementaria. Todos los manuscritos de este suplemento están escritos en inglés. Esperamos que los resultados de investigación presentados en estos artículos fortalezcan el desarrollo de la investigación en salud y contribuyan a mejorar la salud de una población.

# The experience of nurses conducting nursing assessments of occupational diseases in the farm: A phenomenological study

La experiencia de enfermeras realizando evaluaciones de enfermería de enfermedades profesionales en la granja: un estudio fenomenológico

Eko Prasetya Widiyanto<sup>1a\*</sup>, Arista Maisyaroh<sup>2a</sup>, Rizeki Dwi Fibriansari<sup>3a</sup>

## SUMMARY

**Introduction:** *The stages of the farming procedure are carried out sequentially. From planting preparation to harvesting, the farmer has a risk of occupational disease. Farmers will come to the first health service center if there is a health problem, and the nurse in charge will conduct nursing assessments. This study was conducted to explore nurses' experiences in conducting nursing assessments of occupational diseases in agriculture.*

**Methods:** *This study used a phenomenological qualitative study with a descriptive-interpretative approach. The subjects of this study were eight nurses who worked in the first health service in the agricultural area of Lumajang Regency. Data were collected and analyzed using thematic analysis based on the Braun and Clarke approach. The data were validated by triangulation and triangulation methods.*

**Results:** *The researchers found five major themes, namely, using all senses for assessment, using knowledge about agriculture, asking about work history in the planting process, asking about the history of the first management at the time in the agricultural area, and the perception of illness as a risk of work in agriculture.*

**Conclusion:** *Nurses have challenges in carrying out nursing care and must be able to adapt to the work area where their health services are located. Agricultural areas require nurses' knowledge to provide nursing care that focuses on problems in the agricultural area. Assessment as an initial action in the nursing care process requires specific knowledge and skills following the work area of health services. It is hoped that in the future, more special nursing care will be developed following the work.*

**Keywords:** *Agriculture, experience, nurse, nursing care.*

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## RESUMEN

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**Introducción:** *Las etapas del procedimiento de cultivo se realizan secuencialmente. Desde la preparación de la siembra hasta la cosecha, el agricultor tiene riesgo de enfermedad profesional. Los agricultores acudirán al primer centro de atención de salud si hay un problema de salud y la enfermera a cargo realizará las evaluaciones de enfermería. Este estudio se realizó para explorar las experiencias de las enfermeras en la realización de evaluaciones de enfermería de enfermedades profesionales en la agricultura.*

**Métodos:** *Esta investigación utilizó un estudio cualitativo fenomenológico con un enfoque descriptivo-*



*interpretativo. Los sujetos de este estudio fueron ocho enfermeras que trabajaban en el primer servicio de salud en el área agrícola de Lumajang Regency. Los datos fueron recolectados y analizados utilizando un análisis temático basado en el enfoque de Braun y Clarke. Los datos fueron validados por métodos de triangulación y triangulación.*

**Resultados:** *Los investigadores encontraron cinco grandes temas, a saber, usar todos los sentidos para la evaluación, usar el conocimiento sobre agricultura, preguntar sobre la historia del trabajo en el proceso de siembra, preguntar sobre la historia del primer manejo en el momento en el área agrícola, la percepción de la enfermedad como un riesgo del trabajo en la agricultura.*

**Conclusión:** *Las enfermeras tienen desafíos en la realización de los cuidados de enfermería y deben ser capaces de adaptarse al área de trabajo donde se encuentran sus servicios de salud. Las áreas agrícolas requieren del conocimiento del enfermero para brindar cuidados de enfermería enfocados en los problemas del área agrícola. La evaluación como acción inicial en el proceso de atención de enfermería requiere conocimientos y habilidades específicas siguiendo el área de trabajo de los servicios de salud. Se espera que en el futuro se desarrollen más cuidados de enfermería especiales a raíz del trabajo.*

**Palabras clave:** *Agricultura, experiencia, enfermero, cuidado de enfermería.*

### INTRODUCTION

Nursing care is an indicator in determining the quality of health services carried out by nurses as caregivers. The most important aspect of nursing services is nursing documentation (1-3). If the documentation is not carried out properly, it will cause quite a big problem. Therefore, nurses are always required to have expertise and knowledge in carrying out their roles, functions, and responsibilities in providing nursing care. Skills and expertise in nursing are the results of knowledge and clinical experience that have been carried out to make complex decisions and interpret clinical situations in providing professional and quality nursing care due to changes in health needs and community demands as well as government policies related to nursing and health services (4-6).

As is well known, assessment in nursing is the initial stage of the nursing process. It is a

systematic process of collecting data from various sources to identify and evaluate the client's health status. In addition, the assessment is a rationale for providing nursing care in accordance with patient needs. There are three critical points in this study. The first is the stage of collecting data obtained for primary data, focus data, subjective data, and objective data. The second is in the form of nursing data sources, where you get the data sources such as primary and secondary data sources and other data sources such as medical records, disease history, and so on. Third, carrying out the assessment requires appropriate nursing data collection techniques by taking anamnesis, observation, and physical examination of the patient (4,7,8).

The role of nurses is critical in providing health services for patients (9,10). Several studies have explained that nurses' professional behaviour is related to the patient's recovery rate (11-13). In the agricultural sphere, it is the management of care and nursing services in the agricultural sphere that focuses on individuals, families, groups, and even communities that are holistic and comprehensive. Agronursing aims as a forum to meet the health needs of the community in the agricultural environment.

Indonesia is an agricultural country, so most Indonesian workers, especially in rural areas, work in the agricultural sector as farmers with many health risks. For this reason, nurses need to carry out data collection actions correctly for farmers in carrying out nursing care actions in accordance with the diagnoses experienced by farmers. If the nursing management is in accordance with the diagnosis, nursing services to farmers are maximized, and farmers' health level also increases (12).

Agriculture is broadly divided into several sectors, namely food crops consisting of secondary crops, horticulture, and rice, forestry, plantation, fisheries, and livestock sectors. In each sector, each farmer sometimes experiences various nursing problems. For this reason, it is necessary to study the nursing process in the agricultural area. With the assessment carried out completely and systematically following the field, the conditions of farmers are essential for formulating a nursing diagnosis and providing nursing care following farmers' responses as

individuals. However, materials regarding nursing assessment in agricultural areas are still few and rarely found. For this reason, “Guidelines for Agronursing-based nursing assessment” were formed with the hope of being one of the references or considerations in the implementation of nursing documentation of nurses in nursing actions in the scope of agriculture.

Working as a farmer has procedural stages in farming. The stages of the farming procedure are carried out sequentially, from planting preparation to harvesting. At each procedural stage, there is a risk of occupational disease for farmers. Farmers will come to the health care center first if there has been a health problem, and then the nurse on duty will conduct a nursing assessment. Nurses’ experience in conducting nursing assessments on occupational diseases in agriculture has not been widely explored. This study explores nurses’ experience conducting nursing assessments on occupational diseases in agriculture.

## METHODS

This type of research was a phenomenological qualitative study with a descriptive-interpretative approach. The informants were based on the saturated sampling technique, eight nurses who worked in the first health service in the agricultural area of Lumajang district. The variables included knowledge, work history, first management, and perception in nursing

assessment. The instruments used in this study were interview guidelines and a checklist. We collected data by conducting in-depth interviews with informants and observations. Each variable was asked of informants using a checklist and interview guidelines. When conducting research, the researcher directly observed using a checklist. Data were collected and analyzed using thematic analysis based on the Braun and Clarke approach (14). Triangulation was carried out using a source to maintain the validation of the data collected. This research has received ethical approval from the Health Research Ethics Commission, Faculty of Dentistry, Universitas Jember, with an ethical approval number No.982/UN.25.8/KEPK/DL/2020 dated August 26, 2020.

## RESULTS

The final sample consisted of 8 participants. Demographic information is summarised in Table 1. Eight nurses who worked in the first health service in the agricultural area participated. Most participants have more than four years of working experience in emergency units.

Researchers produced five significant themes: using all the senses for assessment, using knowledge about agriculture, asking for work history in the planting process, asking for the history of the first management in the agricultural area, and the perception of illness as a risk of work in agriculture.

Table 1  
Participant Demographic Characteristics

Participant	Gender	Age	Length of work (years)	Workplace Experience
1	Male	25	4	Emergency Unit
2	Male	30	9	Emergency Unit
3	Female	24	4	Emergency Unit
4	Male	35	14	Emergency Unit
5	Female	27	6	Emergency Unit
6	Female	28	7	Emergency Unit
7	Male	26	5	Emergency Unit
8	Male	33	13	Emergency Unit

### Using all senses for assessment

Using the senses here means that nurses use their sensors to carry out nursing assessments quickly. The participant's statement can be seen below:

*"...when the patient comes must be able to see from his appearance a farmer or not ...." (P1)*

*".... There are patients who come with the smell of pesticides, so you have to be careful ...." (P3)*

### Using knowledge about agriculture

The use of knowledge about agricultural science here means that in carrying out nursing assessments, nurses need to know agricultural science to understand the causes of problems due to work in agriculture. The following is a participant's statement that fits the theme:

*".....Farmers often come to health services because they run out of pesticide spray. Usually, they feel nauseous ...." (P2)*

*".....when the planting season must come because of trauma from a sharp object, usually it gets hit by plant residues ...." (P4)*

### Asking for work history in the planting process

Agriculture is a stage of the farming process. Nurses need information on the work carried out at the stages of the planting process. Each stage in the planting process has its type of work. Participants' statements can be seen below:

*".....During the planting season, farmers' health problems that arise also vary depending on what they are working on ...." (P4)*

*".....As usual, we ask for the history of the disease, but the difference is, ask what are you doing in the planting season ...." (P5)*

### Asking for the history of the first management in the agricultural area

Farmers' first aid when health problems occur is adjusting to the surrounding environment. The

first management is something that the nurse needs to review once brought to the health service. Participants' statements can be seen below:

*"... because usually if you get hit by a hoe, you are given pain, so you have to ask first what to do ...." (P1)*

*".....should be asked what treatment has been given, usually various ...." (P6)*

### The perception of illness as a risk of working in agriculture

Sickness as a job risk in agriculture means that farmers understand the risks of their work but consider the risks normal. Participants' statements can be seen below:

*"..... It's considered a backache after a dig is normal, even though it can be dangerous, if you're not strong, just come here (Emergency Department) ...." (P3)*

*"..... Farmers come here (ED) after they can't stand the pain, they are considered normal ...." (P5)*

## DISCUSSION

Mortality and morbidity due to exposure to sustainable agricultural pesticides are global problems. Food and Agriculture Organization (FAO) estimates indicate that approximately 2.7, 6.5, 240, 11.3, and 4.5 million kg of obsolete pesticides are available in Africa, Asia, Eastern Europe, Latin America, and the Middle East. Organochlorides, organophosphates, inorganic pesticides, and certain biopesticides are some of the most commonly used pesticide classes (15) driven by an effort for addressing food security problems related to the rapid population growth and the effects of climate change. As a result, there was a large increase in the number of greenhouse farm workers who are typically involved in chemical preparations and pesticide sprayings, crop harvesting, and greenhouse maintenance activities. Considering the enclosed architecture of the greenhouse farm design and the frequent application of pesticides, the objective of this review was to characterize



pesticide exposure levels and resultant health effects among greenhouse farm workers. While most health assessment studies were mainly based on self-reported symptoms, this review showed limited epidemiological and clinical studies on the assessment of the health effects of pesticide exposure on greenhouse workers' health. Reproductive disorders, respiratory symptoms, neurological symptoms, and skin irritations were the most reported health effects among greenhouse farm workers. Additionally, there were limited studies on respirable pesticide-borne fine and ultrafine particulate matters in greenhouse farms. Ventilation systems and indoor environmental conditions of greenhouse farms were not designed according to specifications of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

Pesticides have led to an increase in agricultural production worldwide. However, when not applied safely, they can cause environmental pollution and adverse health effects, sometimes irreversible (16) research that aims to find out the gap has not been much studied; therefore, this study aims to explore the local wisdom of farmers in recognizing and handling early threats due to hazardous materials in agricultural areas. Method: The research design used was qualitative with an inductive content analysis approach with the Focus Group Discussion (FGD). Using all the senses for assessment exposure to organophosphate pesticides can occur through various pathways, including food contamination, environmental and household contamination, proximity to agricultural fields, and agricultural work (17). However, pesticide exposure by skin has been identified as the main route that contributes the most among workers, particularly pesticide handlers who mix, load, and apply pesticides (18). Exposures are generally assessed with questionnaire data on self-reported exposures. Estimates of the prevalence of occupational exposure to ergonomic risk factors are provided for the five included studies, disaggregated by country, sex, 5-year age group, industrial sector, or occupational group where applicable. The combined prevalence of each exposure to ergonomic risk factors was 0.76 (95% confidence interval 0.69-0.84, 3 studies, 148,433 participants, 35 countries in the World Health Organization (WHO) European region, 12 100 %,

low quality of evidence). Subgroup analysis found no statistically significant differences in exposure by sex but differences by age group, occupation, and country. No evidence was found for publication bias. We judged this evidence to be of low quality based on serious concerns about the risk of bias. Exposure assessments are only self-reported and indirectly due to evidence from two WHO regions.

The various health problems were 28.5% underweight, 10.6% overweight, 62.6% anaemia, and 50.3% joint and bone pain. Using knowledge about agriculture in these results suggests that getting older and drinking coffee increases the likelihood of being thin while having less than 30 minutes of rest per work period and working more than five days per week decreases the likelihood of being overweight. Meanwhile, being a younger man and working for less than five days per week lowered the risk of anaemia. Furthermore, age and less than 30 minutes of rest per work period were associated with increased joint and bone pain (19). Skin protection behaviour of men and women in agriculture remains low. Differences in study design and investigated behaviour make it difficult to draw conclusions or detect trends. Nevertheless, skin cancer is on the rise and is now the most expensive cancer in Australia (20) definitions of skin protection, and analytic methods used. Farmers are the most exposed to harmful ultraviolet (UV).

Asking for work history in the planting process is the fact that plant protection drugs have been applied not according to the instructions and do not guarantee safety can cause poisoning, and shock seriously affects the health of farmers and even lead to death. The results showed that there are still many problems regarding farmers' awareness and habit of using pesticides in Tu Ky district, Hai Duong province (21) Hai Duong province, Vietnam show that their knowledge about plant protection drugs is still very limited. Farmers do not understand the meaning of the colors and the contours on the packaging. The treatment of excess drugs and hygiene activities after pesticide application show that farmers' awareness is not high, thereby leading to environmental pollution and reduction in the physical health of farmers. The results about the effects of pesticides and herbicides on the health of farmers in Tu Ky district show that

farmers often suffer from diseases such as eyes, ears, nose, and throat diseases, skin diseases, and gastrointestinal disorders. The proportion of farmers suffering from common diseases in communes specializing in vegetable production is higher than that of communes specializing in rice production. In particular, the proportions of deaths from cancer in Hung Dao and Ngoc Ky communes were 48.5% and 43.6%, respectively, much higher than that of An Thanh Commune (7.9%). Furthermore, the mediated model shows that working hours increase unsafe behaviour, whereas work experience decreases it. Unsafe behaviour, in turn, shows a positive relationship with accidents through near-miss mediation (22) analyzing the role played by worked hours, work experience, operators' behavior, and near misses. Background: Many accidents occur within the agricultural sector each year. Among them, falls while dismounting the tractor represent a major source of injuries. Previous studies pointed out frequent hazardous movements and incorrect behaviors adopted by operators to exit the tractor cab. However, less is known about the determinants of such behaviors. In addition, near misses are known to be important predictors of accidents, but they have been under-investigated in the agricultural sector in general and as concerns falls in particular. Method: A questionnaire assessing dismounting behaviors, previous accidents and near misses, and participants' relation with work was administered to a sample of Italian tractor operators (n = 286). Among all injuries, injuries such as skin injuries, skin friction, superficial vein injuries, injuries to the toes or fingers, and muscle tension were recorded as the severity of AIS 1. In contrast, injuries to limbs, deep vein injuries, permanent loss of any body part, and infection of the injured limb were considered to be between the severity of AIS 2 and AIS 3 injuries (23) proper hand tool designs need to be recommended with ergonomic evaluations. This paper represents the main causes of agricultural injuries among the Bangladeshi farmers. Effective interventions had been discussed in this paper to reduce the rate of injury. This study was carried out in the Panchagarh district of Bangladesh. Data on 434 agricultural injuries were collected and recorded. About 67% injuries of all incidents were due to hand tools, and the remaining 33% were due to machinery or other sources. Though most of

the injuries were not serious, about 22% injuries were greater than or equal to AIS 2 (Abbreviated Injury Scale).

Occupational health nurses are familiar with the environmental exposures workers face in their workplaces. Asking for the history of the first management in the agricultural area, for example, employees only "work" about a third of each workday, with many potential exposures to other environments that could affect their health. This article discusses some of the main exposures employees face outside the workplace — air, water, soil pollution, and hazardous waste — including a discussion of well-known national and international environmental incidents. The primary sources of these pollutants and how they pollute the environment are investigated. Lastly, risk assessment, communication, and effective strategies for educating employees and the public are presented (24).

Nurses are regularly asked to care for employees from various cultural backgrounds in an increasingly multicultural society. The perception of illness as a risk of working in agriculture because of awareness of cultural differences focuses occupational health nurses on these differences and improves employee care. This article discusses caring for culturally competent employees, non-verbal communication cues among cultural groups, models associated with completing cultural assessments, and how health disparities in the workplace can affect employee care delivery. Self-evaluation of occupational health nurses for personal preferences and biases is also discussed. The development of cultural competence is a process, and occupational health nurses must develop these skills. By developing cultural competence, occupational health nurses can perform a complete cultural assessment, facilitate better communication with employees from different cultural backgrounds, and improve employee health and adherence to treatment regimens. Tips and guidelines to facilitate communication between occupational health nurses and employees are also provided (25).

Occupational health care promotes and restores health, preventing illness and injury, protecting occupational and environmental hazards, and company profitability. Quality education about the relationship between work and health is critical to nurses' success, regardless



of the work setting (26). It is consistent with goals but lacking or limited in some programs. This report introduces an innovative occupational health nursing curriculum for students in the baccalaureate nursing program. The process of designing and piloting this new curriculum, its alignment with nursing competencies, and the format and learning activities are explained (27).

Shoulder pain is a common complaint in the workplace. Shoulder conditions may arise from acute trauma or non-traumatic work-related activities. Shoulder pain falls into three categories: acute pain, chronic pain, and referral pain. The occupational health nurse can document a detailed medical history and physical examination based on focused complaints. The nurse's expert assessment can guide injured workers to needed care, case management, and return to full employment (28).

## CONCLUSION

Nurses who have challenges in carrying out nursing care must be able to adjust to the work area where the health service is located. Agricultural areas require nurses' knowledge in providing nursing care that focuses on problems in the agricultural area. As an initial action in the nursing care process, assessment requires special knowledge and skills from the health service work area. It is hoped that in the future, there will be a lot of special nursing care developed following the work.

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## THE EXPERIENCE OF NURSES

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