Title: The effectiveness of an educational program on the mental health literacy of

nurses working in general hospitals: a controlled trial

Date of document: 10/06/2022

Background

Mental health literacy is a concept that encompasses knowledge of mental health, mental

illnesses, and their management; mental illness-related attitudes/ stigma; and help-seeking

efficacy (Chao et al., 2020; Hao et al., 2020; Kutcher et al., 2016). It affects healthcare

professionals' ability to recognize, manage and prevent mental illnesses (Al-Yateem et al., 2018;

Elyamani & Hammoud, 2020; Furnham & Swami, 2018; Hao et al., 2020; Kutcher et al., 2016;

Wei et al., 2015). There is an increasing number of patients admitted to general hospitals with a

secondary diagnosis of mental illness (Avery et al., 2020; Rice et al., 2019). Physical-mental

comorbidity is a condition in which an individual actively suffered from both physical and

mental illnesses at the same time (Erving, 2017; Sartorius, 2018). It affected 12-40% of patients

in general hospitals and is becoming more prevalent around the globe (Chadda et al., 2017;

Sartorius, 2018; Walker et al., 2018; Weichert, 2019; Zou et al., 2018). Patients with physical-

mental comorbidity had higher healthcare costs in terms of a longer average general hospital stay

of 4.38 days (Jansen et al., 2018), and were more likely to be hospitalized for various reasons

(odd ratio 1.16; 95% confidence interval 1.10-1.23), had more visits in the emergency

department (odd ratio 1.26; 95% confidence interval 1.21-1.32) (Guerrero Fernández de Alba,

Inmaculada et al., 2020) as compared to those without such comorbidity. Furthermore, physical-

mental comorbidity is associated with poor patient physical and mental outcomes, and a higher

mortality rate (Demko, 2018; Guerrero Fernández de Alba, Inmaculada et al., 2020; Rayner et

al., 2014; Weichert, 2019). Psychiatric consultation-liaison service has been developed to address

the mental health service needs of patients with physical-mental comorbidity in general hospitals

(Mak and Wong, 2019). The service reduced patients' psychiatric symptoms (e.g., decreases

depressive symptoms with effect size d= 0.31, 95% CI= 0.21 to 0.41), lowered mortality rates

(e.g., coronary patients who were referred to the service had three times less likely to die

compared those did not), and reduced patients' length of general hospital stay (Singh et al., 2016;

Sivin et al., 2020; Stein et al., 2020). However, the service utilization rate in general hospitals,

which depends on the referral from general hospital healthcare professionals, was low ranging

from 0.72 to 5.8% (Chen et al., 2016; Kovacs et al., 2021). One of the main factors for this care

gap is the suboptimal level of mental health literacy of general hospital healthcare professionals

(Chen et al., 2016; Giandinoto & Edward, 2014; Grover et al., 2017).

The suboptimal level of mental health literacy among general hospital healthcare

professionals is common. A meta-analysis of China medical staff's mental health literacy

reported that general hospital healthcare professionals had the lowest awareness rate of mental

health (68%) compared with community medical staff (82%) and psychiatric hospital staff (88%)

(Guo et al., 2021). They lacked understanding of mental illnesses and treatments and had

negative attitudes toward patients with mental illnesses (Elyamani & Hammoud, 2020; Hao et

al., 2020). General hospital healthcare professionals felt unprepared and had low perceived

competency in dealing with patients' mental illnesses in general hospitals which affected their

care provision (Elyamani & Hammoud, 2020). They tend to prioritize physical healthcare over

mental healthcare which affected the quality of care and patient satisfaction (Giandinoto &

Edward, 2016; Naylor et al., 2016; Pope, 2011; Yıldırım, 2019). In a study of 288 patients with

physical-mental comorbidity in general hospitals, over 80% of patients with active mental

problems were not referred to psychiatric consultation-liaison service because the treating

healthcare professionals considered it unnecessary (Weichert, 2019). Furthermore, general

hospital healthcare professionals expressed frustration in caring for patients with physical-mental

comorbidity and perceived the care was complex and challenging which "strains an already

overburdened workforce" and increased their work stress (Giandinoto & Edward, 2015; Joung et

al., 2017; Weare et al., 2019). Indeed, there is a significant negative relationship between self-

perceived competency and work stress among hospital healthcare professionals (Prahara &

Indriani, 2019; Vaezfar et al., 2014).

Healthcare professionals in the general hospitals, especially nurses, are in regular contact

with patients with physical-mental comorbidity (Giandinoto & Edward, 2015). Indeed, the World

Health Organization recommended that other than providing health services to manage physical-

mental comorbidity, health organizations should ensure general hospital healthcare professionals

have sufficient knowledge and skills to identify patients with mental health needs and know-how

and when to refer such patients for specialized care (Cohen, 2017). This indicated an urgent need

to improve the mental health literacy of general hospital healthcare professionals.

We have conducted a systematic review of randomized controlled trials to examine the

effectiveness of the thirteen interventions in improving the mental health literacy of general

hospital healthcare professionals. The findings showed that intervention with educational

components can improve healthcare professionals' mental health literacy, in terms of mental

health knowledge and mental illness-related attitude/ stigma. In addition, an educational

intervention targeting specific mental illnesses and tailored to the educational needs of general

hospital healthcare professionals had a significant large effect on improving participant's mental

health knowledge (Cohen's d ranges from 0.86 to 1.32) (Handmaker et al., 1999; McCrow et al.,

2014; van de Steeg et al., 2014) and the effect sustained to two months post-intervention

(Cohen's d=0.75) (McCrow et al., 2014). Although the content, delivery mode, duration of the

interventions, and the measures to assess outcomes were varied in our systematic review, it was

found that a web-based approach is a viable and effective strategy to improve general hospital

healthcare professionals' mental health literacy. Evidence suggested that self-paced web-based

education with an estimated time spent of 4 hours was sufficient leading to statistically

significant improvement in participants' mental health literacy immediately after intervention

(van de Steeg et al., 2014) and a five-week free access period to the educational material yielded

a sustained improvement in mental health literacy to six to eight weeks (McCrow et al., 2014).

These results were comparable to an integrative review of the effect of mental health education

on generalist healthcare professionals (Brunero et al., 2012) and a number of quasi-experimental

studies that evaluated the effectiveness of mental health literacy intervention for non-psychiatric

healthcare professionals (D'Onofrio et al., 2002; Gabel & Pearsol, 1993; Graham et al., 1997;

Karlin et al., 2017; Knaak et al., 2015; Madan et al., 2013; Sheffer et al., 2009; Smythe et al.,

2014). Indeed, web-based education provides healthcare professionals with better access to

educational resources at their own pace and time, which is especially important in the current

busy clinical situation and the COVID-19 pandemic (Chan & Leung, 2020; Regmi & Jones,

2020; Vaona et al., 2018). Moreover, the systematic review of the effectiveness of the mental

health literacy intervention for general hospital healthcare professionals found that fewer

interventional studies examined educational intervention to enhance all components of general

hospital healthcare professionals' mental health literacy. To date, none of these studies had been

conducted in Hong Kong.

Nurses are the major healthcare workforce in general hospitals for the initial identification

of mental illness, help doctors to deal with patients' conditions, and contribute to positive patient

outcomes in general hospitals (Hao et al., 2020). Therefore, there is a need to develop an

educational program focused on improving all components of mental health literacy among

nurses working in general hospitals to address the gap in the existing literature.

Development of the educational program

Based on the evidence from the systematic review of the effectiveness of mental health

literacy intervention of general hospital healthcare professionals, the education program should

consist of self-paced web-based education, with an estimated time spent of 4 hours and allowed

free access period of the educational material for at least 5 weeks. It is purposed that the

educational intervention will improve mental health literacy and perceived competency in caring

for patients with mental illnesses among nurses working in general hospitals. As such, the work

stress of general hospital nurses and patient satisfaction with nursing care in general hospitals

can also be improved (Yao et al., 2018). As a result, the educational program developed consists

of six 30-minutes online educational sessions and one 60-minutes face-to-face session (Refer to

Table 1.).

Table 1. Educational program rundown

Online education (30 minutes in each session)		
Module 1: Mental health knowledge		
Session 1: Delirium	The clinical manifestations, assessment principles, and management principles	
Session 2: Depression	The clinical manifestations, assessment principles, and management principles	
Online education (30 minutes in each session)		
Module 2: Mental illness-related attitude/ stigma		
Session 3: Mental illness-related attitude/ stigma in healthcare settings	1	The definition of mental illness-related stigma
	2	The current situation of mental illness-related stigma in healthcare settings
	3	Strategies to reduce mental illness-related stigma in healthcare settings
Session 4: Mental health recovery journey	1	Definition of mental health recovery
	2	Experiences of people with mental illnesses and their recovery
	3	Role of healthcare professionals and the organizations in the mental health recovery journey
Online education (30 minutes in each session)		
Module 3: Help-seeking efficacy		
Session 5: Mental illness-related help-seeking	1	Barriers to the mental illness-related help-seeking
	2	Information about how to seek help and from whom (formal and informal resources)
Session 6: Psychiatric consultation-liaison service	1	The psychiatric consultation-liaison services in general hospitals
	2	The situation warrants a referral to psychiatric consultation-liaison services
	3	Referral procedure of psychiatric consultation-liaison services
Face-to-face session (60 minutes)		
Problem-based learning	Vignettes were based on the clinical scenario and were intended to represent patients with mental illnesses whom psychiatric consultation-liaison service would be helpful.	
	1	Be familiar with the principles of assessment of a mental illness
	2	Be familiar with the principles of management of a mental illness
Group sharing	1	Self-reflection on mental health literacy level and strategies to manage patients with mental illnesses in general hospitals
	2	Discuss the way to improve the mental health literacy of healthcare professionals in general hospitals

In this study, the development of the educational program was guided by the concept of mental health literacy, and self-efficacy theory. In addition, the program will be conducted in a constructivist learning environment.

Concept of mental health literacy

The content of the educational program is underpinned by the concept of mental health literacy including knowledge of mental health, mental illnesses, and their management; mental illness-related attitudes/ stigma; and help-seeking efficacy (Chao et al., 2020; Hao et al., 2020; Kutcher et al., 2016).

Based on the literature review, the educational interventions with specific information on mental illnesses based on the educational need of healthcare professionals were effective in enhancing mental health literacy. Several studies found that the most common mental illnesses found in general hospitals were delirium and depression (Butler et al., 2021; Lolam & Reddy, 2021; López-Atanes et al., 2021; Marchi et al., 2021; Scott et al., 2021; Suhaff et al., 2021). Therefore, online educational sessions are developed focusing on these mental illnesses with information about their clinical manifestations, assessment, and management.

To improve mental illness-related attitudes/ stigma, participants will receive information

about the definition of mental illness-related stigma, the current situation of the stigma in the

healthcare setting, related stigma reduction strategies, and patients' stories sharing. Sharing the

lived experiences of mental illnesses and the recovery journeys allow a better understanding of

patients' strengths, interests, and contributions to the community. Participants will also educate

on the definition of the mental health recovery journey and the role of healthcare professionals in

patients' mental health recovery journey.

Knowing about accessible resources was as essential as knowledge about mental illnesses in

enhancing help-seeking intention and efficacy (Ren et al., 2020; Waldmann et al., 2020). The

information about barriers to help-seeking and the resources available to support general hospital

healthcare professionals in caring for patients with mental illnesses, for example, making

referrals to psychiatric consultation-liaison services, will be included in the intervention. The

information will highlight the situation warranting a referral to the psychiatric consultation-

liaison service, as well as the referral procedure. It was expected that participants can learn to

locate, comprehend, and use information or services after the educational intervention, and able

to make health-related decisions and actions for themselves and their patients that reflect

improvements in help-seeking efficacy (Centers for Disease Control and Prevention, 2021;

Kutcher et al., 2016).

Self-efficacy theory

Self-efficacy refers to an individual's perceived capability to execute behaviors to achieve satisfactory performance attainment (American Psychological Association, 2022; Bandura, 1977). According to the self-efficacy theory (Bandura, 1977), self-efficacy is influenced by performance accomplishment, vicarious experience, social persuasion, and emotional and physiological states (Tay et al., 2020). The educational intervention is developed to address these constructs of self-efficacy.

For performance accomplishment, through pre-and-post-questionnaires and problem-based learning, participants gain self-awareness in personal improvement regarding knowledge, attitudes, and help-seeking efficacy related to the mental health issue. In problem-based learning, participants can experience an enactive mastery experience when they have a chance to use new knowledge learned from the online educational sessions and found success in solving the problems in problem-based learning. They can develop new knowledge by observing others on how to help the patient effectively and have a deeper reflection to positively address their attitudes and behavior toward patients with mental illnesses (Lien et al., 2021). Participants will be more likely to take action to help patients with mental illnesses in the clinical setting when they found their choices may produce desired outcomes. For vicarious experiences, through the

online discussion forum, problem-based learning, and group sharing, participants can learn new

knowledge by observing others' responses to solving the problem when helping patients with

mental illnesses. To ensure social persuasion, positive discussion in the online forum will be

facilitated to encourage learning, positive attitude, and behavioral change in mental health issues.

It aimed at providing participants with positive feedback on knowledge gain, attitude, and

behavioral changes. Verbal feedback will be provided about participants' opinions on handling

the vignettes in the problem-based learning and influences participants to believe in their ability

to help patients with mental illnesses in general hospitals. Compliments will be given for

personal improvement in mental health literacy. Regarding emotional and physiological states, in

the group sharing session, participants' feelings and perceptions will be recognized and there will

a chance to correct negative interpretations from facing a mental health issue. Participants can

learn from each-others for how to manage their own emotions when facing a challenging

situation and improve their sense of self-efficacy in helping patients with mental illnesses in

general hospitals.

Constructivist learning environment

The whole program will be held in a constructivist learning environment. Participants will

be allowed to construct knowledge individually and acquired knowledge based on their

interactions in the external world (Brau, 2018; Rannikmäe et al., 2020; Yıldız-Feyzioğlu et al., 2013). Through pre-post questionnaires and free access to education material, participants proceed with cognitive constructivism by setting up individual learning goals, facilitating further learning according to their own needs, and having the autonomy to control their learning process. Through online discussion forums, problem-based learning, and group sharing, participants undergo social constructivism by learning in a collaborative process.

Methodology

Objectives

This study aims to examine the effect of an educational program on improving the mental health literacy of general hospital nurses, in terms of knowledge of mental health, mental illnesses, and their treatment; attitude or stigma about mental illnesses; and help-seeking efficacy. It also measures the interventional effect on perceived competency in caring for patients with mental illness and work stress among general hospital nurses, as well as patient satisfaction with nursing care in general hospitals.

Study design

This study is a prospective 2-arm parallel controlled trial. Randomized controlled trials

were not feasible for this study because of the risk of contamination (Kahan et al., 2016). It would be difficult to "blind" healthcare professionals to their assigned group because they could easily disseminate information within and between units during clinical sharing or conversation at the common facilities of the same hospital, such as changing rooms and canteen. Two study hospitals will be assigned to the intervention arm or control arm by tossing a coin.

Study setting

The study sites will be conducted in the emergency departments and medical wards of two regional general hospitals. It was because patients with physical-mental comorbidity were mostly caring in this area (Weichert, 2019; Woon & Redzuan, 2019). The two hospitals are similar in nature and the service provided. Both study hospitals provide a comprehensive range of acute, rehabilitation, and ambulatory service for the people living in the western part of the New Territories of Hong Kong. (Pok Oi Hospital, 2022; Tuen Mun Hospital, 2022). These two hospitals had two emergency departments and 18 medical wards, serving about 270,000 patients annually and at least hundreds of nurses were working collaboratively with doctors and allied health in these units (Pok Oi Hospital, 2022; Tuen Mun Hospital, 2022). Indeed, psychiatric consultation-liaison services had been provided in both hospitals since the 1990s.

Eligibility criteria

The inclusion criteria of the participants will be full-time registered nurses (general) or enrolled nurses (general) who care for adult patients in emergency departments or medical wards. There is no restriction on participants' socio-demographic characteristics, such as gender and age. The exclusion criteria are a nurse who had a professional registration in the psychiatric stream, who does not understand Chinese and English, or who is unable to access or use the internet.

Sample size

According to the systematic review of the effectiveness of interventions in improving the mental health literacy of healthcare professionals in general hospitals, the effect size of an effective intervention ranged from Cohen's d =0.75 to 1.32. However, the outcomes concern only a particular component of mental health literacy. Therefore, a more conservative effect size, Cohen's d =0.5 was used for estimation of the sample size of the current study. It is estimated using GPower that a sample size of 64 participants per group is adequate to detect an effect size of 0.5 on the primary outcomes at a post-intervention time point with 80% power at a 5% level of significance. Assuming an attrition rate of 15% (Catalogue of Bias Collaboration et al., 2017), this study will recruit 150 nurses (75 per group).

Recruitment

The sampling method will be convenience sampling. Recruitment of participants will be solicited via a public announcement by the poster and electronic mail. The potential subjects will be screened based on the inclusion and exclusion criteria. An information sheet will be sent via electronic mail to the eligible nurses to provide information about the study including its purpose, data collection procedures, etc. In addition, voluntary participation and the right to withdraw from the study freely at any time without any consequences will also be reinforced. Moreover, all participants will be informed that a monetary incentive, a cash coupon of HKD 50, would be given upon completion of all the measurements to compensate for the time spent. Written informed consent will be obtained from the participants before the study's commencement.

Study intervention

The intervention group will receive an educational program consisting of six 30-minutes online educational sessions and followed by one 60-minutes face-to-face session (Refer to Table 1.).

In the first part, the six online educational sessions will be delivered on a private YouTube channel which consists of information about mental health literacy (knowledge about mental health, mental illnesses, and their management, attitude/ stigma related to mental illnesses, and

help-seeking efficacy), pre-post session questionnaires, and an online discussion forum. After

educational materials were validated by two experienced psychiatrists and two advanced practice

psychiatric nurses, educational videos will be uploaded to the private YouTube Channel and

allowed participants to have six weeks of unrestricted access. Interactions will be facilitated

through an online discussion forum and relevant articles, or web pages will be posted to facilitate

further learning. The attendance of participants will be tracked and those who had trouble

accessing the content will be contacted by the research team proactively. To reduce attrition, the

research team will contact participants weekly, and maintain ongoing communication through

email. A friendly email reminder will be sent to participants who fail to complete access all the

educational videos 5 days before the free access period ends. 80% attendance will be considered

to be good compliance. After 6-weeks of free access to online education, participants will be

arranged into small groups for a 60-minute face-to-face session.

The second part is a face-to-face session which consists of problem-based learning and

group sharing. In problem-based learning, participants will be divided into a group of 7-8 people.

This session will be conducted by the associate consultant of the psychiatric consultation-liaison

service and facilitated by the researcher. Participants were invited to read the vignettes of a

patient with a mental illness in a general hospital. Two vignettes were provided, which are based

on the clinical scenarios which can happen in participants' work and are meant to illustrate

patients with physical-mental comorbidity in a general hospital who might benefit from

psychiatric consultation-liaison service. Through group discussion, participants had to come up

with the diagnosis of the case and offer an opinion on action that can be taken by general hospital

nurses in helping patients with mental illnesses in general hospitals. In the group sharing, a

summary of information about general hospital nurses' mental health literacy obtained in the

online education will be presented. Participants can identify the common mental health

knowledge deficit, mental illness-related beliefs, and barriers in help-seeking among general

hospital nurses who care for patients with mental illnesses. Participants are encouraged to share

their personal experiences related to mental health literacy and to explore strategies for dealing

with difficulties of caring for patients with mental illnesses in general hospitals, such as how to

manage their own emotions when confronted with a challenging scenario. Furthermore,

discussions will be guided on further strategies for promoting mental health literacy of healthcare

professionals in general hospitals. For this session, the mode of delivery will be changed into

zoom meetings according to the situation of disease outbreaks. The total duration of the

educational program is 4 hours, and the intervention period will be seven weeks.

The control group will not receive any educational intervention related to mental health

literacy.

Data collection

Before starting the educational program, the socio-demographic data of the participants including age, gender, marital status, education level, occupation, and working years will be collected. The information from participants will be collected through the self-reported form. The collection of these data can provide a more comprehensive picture of the background of the participants and allow initial equivalence among the study groups to be examined.

In this study, participants will be asked to complete a set of questionnaires including (1) Level of mental health literacy, (2) Perceived competency in caring for patients with mental illnesses, and (3) Level of work stress by online survey. All consenting participants will be assessed at baseline, immediate post-intervention, and one-month post-intervention. Participants from the control group will be assessed on the equivalent dates at the same time points. If there are missing responses to questionnaires completed by participants, the research assistant will follow up via phone or email up to three times to obtain the missing responses.

To examine the interventional effect on the patient satisfaction with nursing care in general hospitals, patients being referred to psychiatric consultation-liaison service at the study sites will

be asked to complete the patient satisfaction survey at baseline (two weeks period before

intervention), post-intervention (two weeks period immediate after intervention), and follow-up

(two weeks period after one-month post-intervention).

Measurements

Primary outcome: Level of general hospital healthcare professionals' mental health literacy

The level of general hospital healthcare professionals' mental health literacy will be

evaluated using The Mental Health Literacy Scale developed by Connor & Casey (2015). This

questionnaire comprised 35 items which consisted of the ability to recognize disorders (8

questions), knowledge of where to seek information (4 questions), knowledge of risk factors and

causes (2 questions), knowledge of self-treatment (2 questions), knowledge of professional help

available (3 questions), attitudes that promote recognition or appropriate help-seeking behavior

(16 questions) (O'Connor & Casey, 2015). Questions with a 4-point scale are rated "1" was very

unlikely/unhelpful, "4" was very likely/helpful and for a 5-point scale that "1" strongly

disagreed/definitely unwilling, "5" strongly agreed/definitely willing. The higher the total score

indicates a higher level of mental health literacy. The scale demonstrated good internal and test-

retest reliability, and good validity. The Cronbach's alpha of the 35-items scale was .873. Test-

retest reliability was $r(69)=.797$, $p<.001$. The scale was significantly positively correlated with

the General Help-seeking Questionnaire total scale *of r*(370)=.234, *p*<.001.

Secondary outcome: perceived competency in caring for patients with mental illnesses

The Behavioral Health Care Competency survey (Rutledge et al., 2013; Rutledge et al., 2012) will be used to assess the perceived competency in caring for patients with mental illnesses. It consists of 23-items to assess the healthcare professionals' perception of their competency in assessment, intervention, recognition of the need for referral, and dealing with resources issues (Rutledge et al., 2013; Rutledge et al., 2012). Questions with a 5-point Likert-type scale with responses 1= "Strongly disagree" to 5=" Strongly agree" The higher the total score, the higher respondent's perceived competency in caring for patients with mental illnesses. By using principal component analysis with varimax rotation, 23 items led to a factor structure with four components supported by Eigenvalues greater than one and visual inspection of the Scree plot. The Cronbach's alpha for the subscale was assessment (.91), intervention (.90), recommendation (.78), and resources adequacy (.78). The scale demonstrated adequate construct validity and internal consistency.

Secondary outcome: Level of work stress

The Workplace Stress Scale developed by the Marlin Company and the American Institute

of Stress will be used to assess participants' work stress levels. This scale consists of eight items

that describe the perception of the respondent toward his or her work. Questions with a 5-point

scale are rated "1' was never, and "5" was very often. The higher the total score indicates a

higher level of work stress. A total score of 15 or lower interpreted as stress is not much of an

issue, whilst 31-40 was indicative of a potentially dangerous stress level that may need to seek

professional assistance (Jadhav et al., 2018). The scale was validated by seeking opinions from a

group of oncology nurses. The Cronbach's alpha reliability coefficient was .80 (Soltan et al.,

2020)

Secondary outcome: Patient satisfaction with nursing care

Hospital Patient Satisfaction Survey (Huang & Yen, 2015) will be used to assess patient

satisfaction with nursing care in general hospitals. There are eight questions on the scale to

measure patient satisfaction with nursing care during the hospitalization with a 4-point Likert

scale (from "0"=never to "4"=always). The scale had a good psychometric property with a

content validity index of .97, item discrimination critical ratio of 28.61 to 50.25, and item

correlations ranged from .68 to .84. The exploratory factor analysis with item factor loadings

(factors of "professional knowledge and skill" and "environmental control") ranged from .61

to .84, explaining 71.40% of the total variance. The internal consistency was Cronbach's
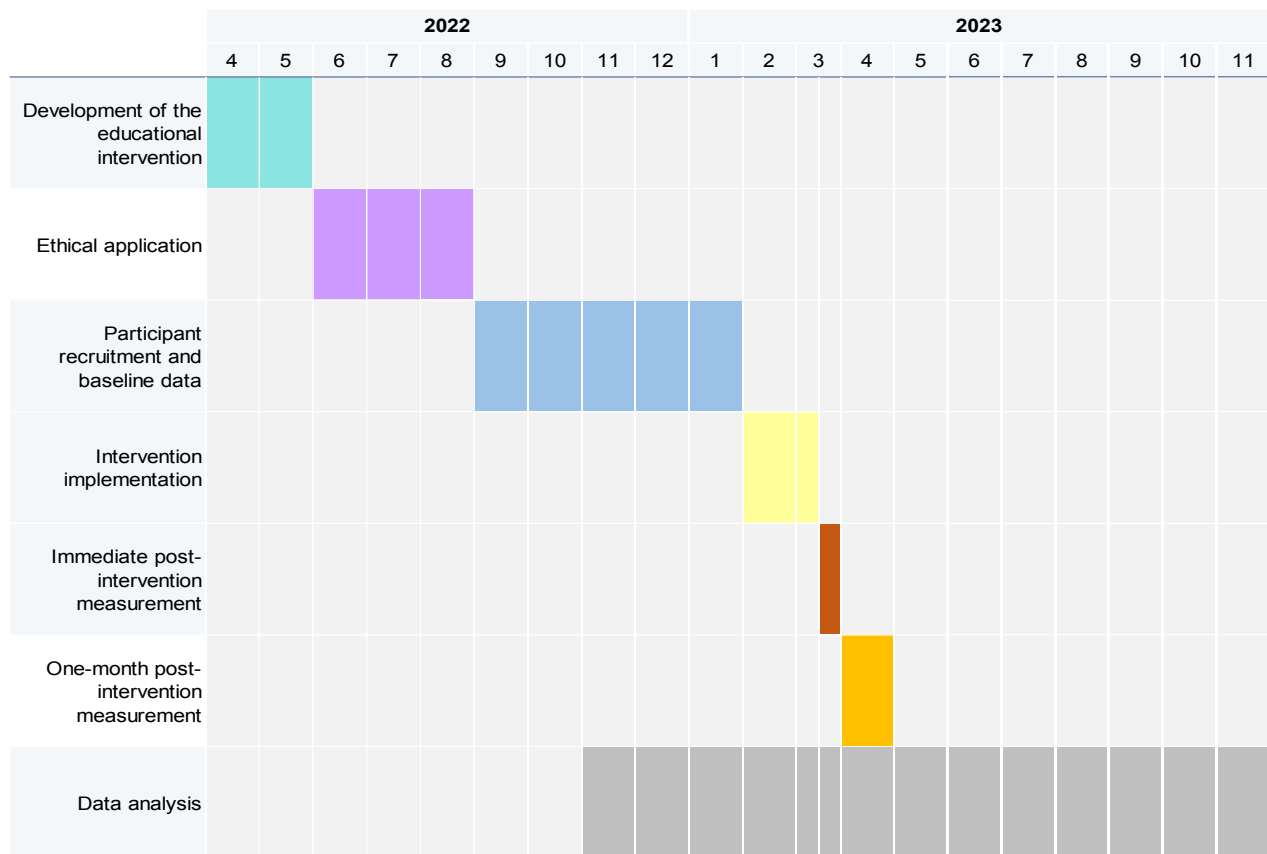
alpha= .97. (Huang & Yen, 2015).

Data analysis

Statistical analyses

Statistical Package for Social Science will be used for data analysis will be employed for all statistical analyses.

Descriptive statistics were used including means, standard deviations, medians, quartiles, and ranges for age, years of working years, and relative frequencies for gender, marital status, highest education, and occupation. Independent t, Mann-Whitney, chi-square, or Fisher's exact tests, as appropriate, to compare the socio-demographic characteristics between groups. For the outcomes, the generalized estimation equations (GEE) model will be used to examine the intervention effects. Each of the outcomes will be compared between groups with adjustment for potential confounding factors, for example, characteristics of participants shown statistically different between arms at baseline. An intention-to-treat, repeated measures analysis will be conducted to compare changes in the two groups over time. Three effects will be evaluated including the time effect, group effect, and time x group interaction effect. A 2-sided p value less than .05 will be considered statistically significance for all analyses.

Timetable of work

	2022									2023											
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
Development of the educational intervention	■	■																		
Ethical application			■	■	■															
Participant recruitment and baseline data						■	■	■	■	■										
Intervention implementation											■	■								
Immediate post-intervention measurement												■								
One-month post-intervention measurement													■							
Data analysis						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Figure 1. Timetable of work

The study will be commenced in September 2022. The educational materials for the intervention will be prepared by an experienced psychiatric consultation-liaison nurse and validated by two psychiatrists and two advanced practice psychiatric nurses. The procedure may probably need two months to complete, suggesting that the learning material will be ready at end of June 2022. Ethical approval will be sought, and the recruitment is expected to start in September 2022. Baseline data collection will be started after consent is obtained. The

intervention is expected to start at end of February 2023. Post-intervention individual assessment

will be done immediately after the program completion and one month after the program

completion. It is expected that the finalization of data collection and analysis can be completed in

November 2023.

Ethical considerations

This study will be conducted in compliance with the International Conference on

Harmonization of Good Clinical Practice (ICH-GCP) and the Declaration of Helsinki. The

intervention and data collection in this study are safe, and no known risk is envisaged concerning

the participants' physical and/or mental health. Ethical approval to conduct the study will be

obtained from the Clinical and Research Ethics Committee of the target hospitals (New

Territories West Cluster Research Ethics Committee) and the Joint Chinese University of Hong

Kong- New Territories East Cluster Clinical Research Ethics Committee. Before the study

commences, written consent will be sought from eligible and interested participants. The

information including the purpose of the study, method of data collection procedures, and their

response remains anonymous and confidential and will be provided to the participants. For the

data collection from patients in the study sites, the investigator will provide potential subjects

with an outline of the survey and what participation entails. Informed consent will be sought, and

subjects can contact principal investigators for any inquiries. All participants should voluntarily

participate in the study and can be free to withdraw from the study or terminate participation at

any time without any consequences.

In the data collection process, all the data will be coded and encrypted. Each returned

questionnaire will be assigned with a study code. Anonymity and confidentiality will be assured.

The data collection will follow The Personal Data (Privacy) Ordinance in Hong Kong. Any

personally identifiable information or any information obtained in connection with this study will

remain confidential and the identities of participants will at no time be revealed in any report of

this study. The research team will use a made-up name for participants in any writing or

presentation. Only the research team will know about participants' specific answers.

The research data will be kept in locked cabinets in a secured office and the electronic data

will be kept in a secured computer with restricted access. Personal data will not be stored on a

USB device. Personal data including name, HKID, address, and any other personally identifiable

information, would not be collected for this study. The document of an electronic file containing

the linkage information between the study code and the identity of the participant would not

contain any other information and would be kept separate from the study data files or

questionnaires with the same stringent security as the medical record according to the hospital

policies. The principal investigator will be responsible for safekeeping on the personal data during and after the study. After the study, the data will be kept for 3 years (The Office of the Federal Register of the National Archives and Records Administration & The U.S. Government Publishing Office, 2018). Then, all the data will be deleted, and the documents will be shredded.

Significance of the study

The implementation of the educational program is expected to improve general hospital nurses' mental health literacy, perceived competency in caring for patients with mental illnesses, and work stress. This study will provide evidence-based data regarding the application of the educational program in healthcare organizations to improve general hospital nurses' level of mental health-related knowledge, attitudes, help-seeking efficacy, their perceived competency in caring for patients with mental illnesses, and their work stress. This is especially important for general hospital nurses who experiencing challenges in caring for patients with physical-mental comorbidity in general hospitals. The findings of this study are expected to provide new knowledge that may contribute to the future development of an in-service training program aimed at improving clinical practices for caring for patients with physical-mental comorbidity in general hospitals.

References

Al-Yateem, N., Rossiter, R. C., Robb, W. F., & Slewa-Younan, S. (2018). Mental health literacy

of school nurses in the United Arab Emirates. *International Journal of Mental Health

Systems, 12*(1), 6. https://doi.org/10.1186/s13033-018-0184-4

American Psychological Association. (2022). *Teaching Tip Sheet: Self-efficacy.* American

Psychological Association. https://www.apa.org/pi/aids/resources/education/self-efficacy

Avery, J., Schreier, A., & Swanson, M. (2020). A complex population: Nurse's professional

preparedness to care for medical-surgical patients with mental illness. *Applied Nursing

Research, 52*, 151232. http://doi.org/10.1016/j.apnr.2020.151232

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change.

Psychological Review, 84(2), 191-215.

Brau, B. (2018). Constructivism. In R. Kimmons, & S. Caskurlu (Eds.), *The Students' Guide to

Learning Design and Research.* (2018). EdTech Books.

Brunero, S., Jeon, Y., & Foster, K. (2012). Mental health education programmes for generalist

health professionals: An integrative review. *International Journal of Mental Health

Nursing, 21*(5), 428-444. https://doi.org/10.1111/j.1447-0349.2011.00802.x

Butler, M., Delvi, A., Mujic, F., Broad, S., Pauli, L., Pollak, T. A., Gibbs, S., Lam, F., Calcia, M.

A., Posporelis, S., & Sin, C. C. (2021). Reduced Activity in an Inpatient Liaison Psychiatry

Service During the First Wave of the COVID-19 Pandemic: Comparison With 2019 Data

and Characterization of the SARS-CoV-2 Positive Cohort. *Frontiers in Psychiatry, 12*,

619550. https://doi.org/10.3389/fpsyt.2021.619550

Catalogue of Bias Collaboration, Bankhead, C., Aronson, J. K. & Nunan, D. (2017). *Attrition

bias.* Catalogue Of Bias. https://catalogofbias.org/biases/attrition-bias/

Centers for Disease Control and Prevention. (2021). *Health literacy.* Centers for Disease Control

and Prevention. https://www.cdc.gov/healthliteracy/learn/index.html

Chadda, R. K., Deb, K. S., Prakash, S., & Sood, M. (2017). Need Assessment of Consultation

Liaison Psychiatry amongst the Clinical Faculty. *Annals of the National Academy of

Medical Sciences (India), 53*(2), 97. https://doi.org/10.1055/s-0040-1712751

Chan, W. S., & Leung, A. Y. (2020). Facebook as a Novel Tool for Continuous Professional

Education on Dementia: Pilot Randomized Controlled Trial. *Journal of Medical Internet

Research, 22*(6), e16772. https://doi.org/10.2196/16772

Chao, H., Lien, Y., Kao, Y., Tasi, I., Lin, H., & Lien, Y. (2020). Mental Health Literacy in

Healthcare Students: An Expansion of the Mental Health Literacy Scale. *International*

Journal of Environmental Research and Public Health, 17(3), 948.

https://doi.org/10.3390/ijerph17030948

Chen, K. Y., Evans, R., & Larkins, S. (2016). Why are hospital doctors not referring to

Consultation-Liaison Psychiatry? - a systemic review. *BMC Psychiatry, 16*(1), 390.

https://doi.org/10.1186/s12888-016-1100-6

Cohen, A. (2017). *Addressing comorbidity between mental disorders and major*

noncommunicable diseases. World Health Organization.

https://www.euro.who.int/_data/assets/pdf_file/0009/342297/Comorbidity-report_E-web.pdf

Demko, S. (2018). IBD Patients with Depression, Anxiety at Risk for Medical Non-compliance.

Healio Gastroenterology, 4(1), 31.

D'Onofrio, G., Nadel, E. S., Degutis, L. C., Sullivan, L. M., Casper, K., Bernstein, E., & Samet,

J. H. (2002). Improving emergency medicine residents' approach to patients with alcohol

problems: A controlled educational trial. *Annals of Emergency Medicine, 40*(1), 50-62.

http://doi.org/10.1067/mem.2002.123693

Elyamani, R., & Hammoud, H. (2020). Mental Health Literacy of Healthcare Providers in Arab

Gulf Countries: A Systematic Review. *Journal of Primary Care & Community Health, 11*,

2150132720972271. https://doi.org/10.1177/2150132720972271

Erving, C. L. (2017). Physical-psychiatric comorbidity: Implications for health measurement and

the Hispanic Epidemiological Paradox. *Social Science Research, 64*, 197-213.

https://doi.org/10.1016/j.ssresearch.2016.10.015

Furnham, A., & Swami, V. (2018). Mental Health Literacy: A Review of What It Is and Why It

Matters. *International Perspectives in Psychology: Research, Practice, Consultation, 7*(4),

240-257. https://doi.org/10.1037/ipp0000094

Gabel, L. L., & Pearsol, J. A. (1993). The Twin Epidemics of Substance Use and HIV: A State-

level Response Using a Train-the-trainer Model. *Family Practice, 10*(4), 400-405.

http://doi.org/10.1093/fampra/10.4.400

Giandinoto, J., & Edward, K. (2014). Challenges in acute care of people with co-morbid mental

illness. *British Journal of Nursing (Mark Allen Publishing), 23*(13), 728-732.

https://doi.org/10.12968/bjon.2014.23.13.728

Giandinoto, J., & Edward, K. (2015). The phenomenon of co-morbid physical and mental illness

in acute medical care: the lived experience of Australian health professionals. *BMC*

Research Notes, 8(1), 295. https://doi.org/10.1186/s13104-015-1264-z

Giandinoto, J., & Edward, K. (2016). The Experience of Mental Health Literacy in Health

Professionals in Non-Mental Health Areas. *International Journal of Health, Wellness &*

Society, 6(2), 1-12. https://doi.org/10.18848/2156-8960/CGP/v06i02/1-12

Graham, A. V., Christy, K., Emmitt-Myers, S., & Zyzanski, S. (1997). Substance abuse

education for clinical nurses: a controlled study. *The Journal of Continuing Education in*

Nursing, 28(5), 217-222.

Grover, S., Sahoo, S., Aggarwal, S., Dhiman, S., Chakrabarti, S., & Avasthi, A. (2017). Reasons

for referral and diagnostic concordance between physicians/surgeons and the consultation-

liaison psychiatry team: An exploratory study from a tertiary care hospital in India. *Indian*

Journal of Psychiatry, 59(2), 170-175.

https://doi.org/10.4103/psychiatry.IndianJPsychiatry_305_16

Guerrero Fernández de Alba, Inmaculada, Gimeno -Miguel, A., Poblador-Plou, B., Gimeno-

Feliu, L., Ioakeim-Skoufa, I., Rojo-Martíez, G., Forjaz, M. J., & Prados -Torres, A. (2020).

Association between mental health comorbidity and health outcomes in type 2 diabetes

mellitus patients. *Scientific Reports, 10*(1), 19583. https://doi.org/10.1038/s41598-020-

76546-9

Guo, S., Xiong, J., Liu, F., & Su, Y. (2021). Mental Health Literacy Levels of Medical Staff in

China: An Assessment Based on a Meta-Analysis. *Frontiers in Psychiatry, 12*, 683832.

https://doi.org/10.3389/fpsyt.2021.683832

Handmaker, N. S., Hester, R. K., & Delaney, H. D. (1999). Videotaped training in alcohol

counseling for obstetric care practitioners: a randomized controlled trial. *Obstetrics and

Gynecology (New York.1953), 93*(2), 213-218. https://doi.org/10.1016/S0029-

7844(98)00377-9

Hao, Y., Wu, Q., Luo, X., Chen, S., Qi, C., Long, J., Xiong, Y., Liao, Y., & Liu, T. (2020).

Mental Health Literacy of Non-mental Health Nurses: A Mental Health Survey in Four

General Hospitals in Hunan Province, China. *Frontiers in Psychiatry, 11*, 507969.

https://doi.org/10.3389/fpsyt.2020.507969

Huang, W., & Yen, M. (2015). 中文版住院病人護理照護滿意度之信效度測試. *領導護理,

16*(1)https://doi.org/10.29494/LN.201503_16(1).0003

Jadhav, S., Kalyamshetty, A., Dasila, P., Kerkar, P. G., & Kaul, S. (2018). To Assess the Level

of Workplace Stress among 18-45yr Patients Admitted with Myocardial Infarction.

International Journal of Health Sciences and Research, 8(4), 153-158.

https://www.ijhsr.org/IJHSR_Vol.8_Issue.4_April2018/24.pdf

Joung, J., Jang, M. Y., Shim, J., Ko, Y., & Shin, S. H. (2017). Difficulties in Caring for

Psychiatric Patient as Experienced by Non-Psychiatric Nurses. *Journal of Korean Academy*

of Nursing, 47(1), 49. https://doi.org/10.4040/jkan.2017.47.1.49

Kahan, B. C., Forbes, G., Ali, Y., Jairath, V., Bremner, S., Harhay, M. O., Hooper, R., Wright,

N., Eldridge, S. M., & Leyrat, C. (2016). Increased risk of type I errors in cluster

randomised trials with small or medium numbers of clusters: a review, reanalysis, and

simulation study. *Trials, 17*(1), 438. https://doi.org/10.1186/s13063-016-1571-2

Karlin, B. E., Young, D., & Dash, K. (2017). Empowering the dementia care workforce to

manage behavioral symptoms of dementia: Development and training outcomes from the

VOICE Dementia Care Program. *Gerontology & Geriatrics Education, 38*(4), 375-391.

https://doi.org/10.1080/02701960.2016.1209419

Knaak, S., Ungar, T., & Patten, S. (2015). Seeing is believing: Biological information may

reduce mental health stigma amongst physicians. *Australian and New Zealand Journal of*

Psychiatry, 49(8), 751-752. https://doi.org/10.1177/0004867415584643

Kovacs, Z., Asztalos, M., Grøntved, S., & Nielsen, R. E. (2021). Quality assessment of a

consultation-liaison psychiatry service. *BMC Psychiatry, 21*(1), 281.

https://doi.org/10.1186/s12888-021-03281-4

Kutcher, S., Wei, Y., & Coniglio, C. (2016). Mental Health Literacy: Past, Present, and Future.

Canadian Journal of Psychiatry.Revue Canadienne De Psychiatrie, 61, 154-158.

https://doi.org/10.1177/0706743715616609

Lien, Y., Lin, H., Lien, Y., Tsai, C., Wu, T., Li, H., & Tu, Y. (2021). Challenging mental illness

stigma in healthcare professionals and students: a systematic review and network meta-

analysis. *Psychology & Health, 36*(6), 669-684.

https://doi.org/10.1080/08870446.2020.1828413

Lolam, O., & Reddy, N. K. (2021). Consultation Liaison Psychiatry: Study from A Tertiary Care

Hospital, Adilabad. *International Journal of Pharmaceutical and Clinical Research, 13*(6),

9-15.

López -Atanes, M., González -Briceño, J. P., Abeal -Adham, A., Fuertes-Soriano, S., Cabezas-

Garduño, J., Peña -Rotella, Á, & Sáenz -Herrero, M. (2021). Liaison Psychiatry During the

Peak of the Coronavirus Pandemic: A Description of Referrals and Interventions. *Frontiers*

in Psychiatry, 12, 555080. https://doi.org/10.3389/fpsyt.2021.555080

Madan, I., Henderson, M., Hashtroudi, A., Hope, V., & Harvey, S. B. (2013). Prospective

evaluation of mental health training for occupational health practitioners. *Occupational*

Medicine (Oxford), 63(3), 217-223. https://doi.org/10.1093/occmed/kqt008

Marchi, M., Magarini, F. M., Mattei, G., Pingani, L., Moscara, M., Galeazzi, G. M., & Ferrari, S.

(2021). Diagnostic Agreement between Physicians and a Consultation-Liaison Psychiatry

Team at a General Hospital: An Exploratory Study across 20 Years of Referrals.

International Journal of Environmental Research and Public Health, 18(2), 749.

https://doi.org/10.3390/ijerph18020749

McCrow, J., Sullivan, K. A., & Beattie, E. R. (2014). Delirium knowledge and recognition: A

randomized controlled trial of a web-based educational intervention for acute care nurses.

Nurse Education Today, 34(6), 912-917. https://doi.org/10.1016/j.nedt.2013.12.006

Naylor, C., Das, P., Ross, S., Honeyman, M., Thompson, J. & Gilburt, H. (2016). *Bring together*

physical and mental health. . The King's Fund.

https://www.kingsfund.org.uk/publications/physical-and-mental-health

O'Connor, M., & Casey, L. (2015). The Mental Health Literacy Scale (MHLS): A new scale-

based measure of mental health literacy. *Psychiatry Research, 229*(1), 511-516.

https://doi.org/10.1016/j.psychres.2015.05.064

Pok Oi Hospital. (2022). *Pok Oi Hospital Clinical Services.* Pok Oi Hospital.

https://www3.ha.org.hk/poh/en/services/02_01.asp

Pope, W. S. (2011). Another Face of Health Care Disparity: Stigma of Mental Illness. *Journal of*

Psychosocial Nursing and Mental Health Services, 49(9), 27-31.

https://doi.org/10.3928/02793695-20110802-01

Prahara, S. A., & Indriani, N. (2019). Employees: Occupational Self-Efficacy and Work Stress.

Journal of Psychology and Instruction, 3(3), 91-96.

https://ejournal.undiksha.ac.id/index.php/joPal

Rannikmäe, M., Holbrook, J., & Soobard, R. (2020). Social Constructivism —Jerome Bruner.

(pp. 259-275). Springer International Publishing. https://doi.org/10.1007/978-3-030-43620-

9_18

Rayner, L., P., Matcham, F., MS, Hutton, J., D.C., Stringer, C., BS, Dobson, J., MS, Steer, S., P.,

& Hotopf, M., P. (2014). Embedding integrated mental health assessment and management

in general hospital settings: feasibility, acceptability and the prevalence of common mental

disorder. *General Hospital Psychiatry, 36*(3), 318-324.

https://doi.org/10.1016/j.genhosppsych.2013.12.004

Regmi, K., & Jones, L. (2020). A systematic review of the factors - enablers and barriers -

affecting e-learning in health sciences education. *BMC Medical Education, 20*(1), 91.

https://doi.org/10.1186/s12909-020-02007-6

Ren, Z., Zhao, C., Tian, F., Yan, Y., Li, D., Zhao, Z., Tan, M., & Jiang, G. (2020). Meta-analysis

of the effect of mental health literacy intervention in Chinese people. *Acta Psychologica

Sinica, 52*(4), 497. https://doi.org/10.3724/SP.J.1041.2020.00497

Rice, M. J., Stalling, J., & Monasterio, A. (2019). Psychiatric-Mental Health Nursing: Data-

Driven Policy Platform for a Psychiatric Mental Health Care Workforce. *Journal of the*

American Psychiatric Nurses Association, 25(1), 27-37.

https://doi.org/10.1177/1078390318808368

Rutledge, D. N., Wickman, M. E., Cacciata, M., Winokur, E. J., Loucks, J., & Drake, D. (2013).

Hospital staff nurse perceptions of competency to care for patients with psychiatric or

behavioral health concerns. *Journal for Nurses in Professional Development, 29*(5), 255-

262. http://doi.org/10.1097/01.NND.0000433150.18384.1c

Rutledge, D. N., Wickman, M., Drake, D., Winokur, E., & Loucks, J. (2012). Instrument

validation: hospital nurse perceptions of their Behavioral Health Care Competency. *Journal

of Advanced Nursing, 68; Accepted for publication 31 March 2012*(12), 2756-2765.

http://doi.org/10.1111/j.1365-2648.2012.06025.x

Sartorius, N. (2018). Comorbidity of mental and physical disorders: a key problem for medicine

in the 21st century. *Acta Psychiatrica Scandinavica, 137*(5), 369-370.

https://doi.org/10.1111/acps.12888

Scott, G., Beauchamp-Lebrón, A.,M., Rosa -Jiménez, A.,A., Hernández -Justiniano, J.,G., Ramos-

Lucca, A., Asencio-Toro, G., & Jiménez -Chávez, J. (2021). Commonly diagnosed mental

disorders in a general hospital system. *International Journal of Mental Health Systems, 15*(1), 61. https://doi.org/10.1186/s13033-021-00484-w

Sheffer, C. E., Barone, C. P., & Anders, M. E. (2009). Training health care providers in the treatment of tobacco use and dependence: pre- and post-training results. *Journal of Evaluation in Clinical Practice, 15*(4), 607-613. https://doi.org/10.1111/j.1365-2753.2008.01058.x

Singh, I., Fernando, P., Griffin, J., Edwards, C., Williamson, K., & Chance, P. (2016). Clinical outcome and predictors of adverse events of an enhanced older adult psychiatric liaison service: Rapid Assessment Interface and Discharge (Newport). *Clinical Interventions in Aging, 12*, 29-36. https://doi.org/10.2147/CIA.S104278

Sivin, P. S., Keerthy, R., Soumya, T., Sheena, V., Joice, G., Vijayalal, V., & Kallivayalil, R. A. (2020). Consultation Liaison Psychiatry - Diagnostic concordance between referring physician and psychiatrist. *The Kerala Journal of Psychiatry, 33*(1), 16-26. https://doi.org/10.30834/KJP.33.1.2020.182

Smythe, A., Jenkins, C., Harries, M., Atkins, S., Miller, J., Wright, J., Wheeler, N., Dee, P., Bentham, P., & Oyebode, J. (2014). Evaluation of Dementia Training for Staff in Acute

Hospital Settings. *Nursing Older People, 26*(2), 18-24.

https://doi.org/10.7748/nop2014.02.26.2.18.e527

Soltan, M. R., Al-Hassanin, S., Soliman, S. S., & Gohar, S. F. (2020). Workplace-related stress

among oncologists: Egyptian single-centered observational study. *Middle East Current*

Psychiatry (Cairo), 27(1), 1-7. 10.1186/s43045-020-00026-z

Stein, B., Müller, M.,M., Meyer, L. K., & Söllner, W. (2020). Psychiatric and Psychosomatic

Consultation-Liaison Services in General Hospitals: A Systematic Review and Meta-

Analysis of Effects on Symptoms of Depression and Anxiety. *Psychotherapy and*

Psychosomatics, 89(1), 6-16. http://doi.org/10.1159/000503177

Suhaff, A. A., Wani, S. M., Gania, A. M., Khan, A. W., Abrar, N. A., & Teli, B. A. (2021).

Clinical profile of patients brought under consultation-liaison psychiatry A hospital based

study. *International Journal of Innovative Science and Research Technology, 6*(1)

Tay, J. L., Goh, Y. S., & Klainin-Yobas, P. (2020). Online HOPE intervention on mental health

literacy among youths in Singapore: An RCT protocol. *Journal of Advanced Nursing, 76*(7),

1831-1839. https://doi.org/10.1111/jan.14393

The Office of the Federal Register of the National Archives and Records Administration, & The

U.S. Government Publishing Office. (2018). *Code of Federal Regulations: Part 46.*

Protection of human subjects. Code of Federal Regulations. https://www.ecfr.gov/on/2018-

07-19/title-45/subtitle-A/subchapter-A/part-46#46.115

Tuen Mun Hospital. (2022). *Tuen Mun Hospital Clinical Services.* Tuen Mun Hospital.

https://www3.ha.org.hk/tmh/en/services/02_01.asp

Vaezfar, S. S., Azadi, M. M., Akbari Balootbangan, A., & Rahimi, M. (2014). The Role of

Coping styles and Self-efficacy in Nurses Job Stress in Hospital. *Ijpn, 2*(2), 22-32.

http://ijpn.ir/article-1-330-en.html

van de Steeg, L., Ijkema, R., Langelaan, M., & Wagner, C. (2014). Can an e-learning course

improve nursing care for older people at risk of delirium: a stepped wedge cluster

randomised trial. *BMC Geriatrics, 14*(1), 69. https://doi.org/10.1186/1471-2318-14-69

Vaona, A., Banzi, R., Kwag, K. H., Rigon, G., Cereda, D., Pecoraro, V., Tramacere, I., & Moja,

L. (2018). E-learning for health professionals. *Cochrane Database of Systematic Reviews, 1*,

CD011736. https://doi.org/10.1002/14651858.CD011736.pub2

Waldmann, T., Staiger, T., Oexle, N., & Rüsch, N. (2020). Mental health literacy and help -

seeking among unemployed people with mental health problems. *Journal of Mental Health*

(Abingdon, England), 29(3), 270-276. https://doi.org/10.1080/09638237.2019.1581342

Walker, J., Burke, K., Wanat, M., Fisher, R., Fielding, J., Mulick, A., Puntis, S., Sharpe, J.,

Esposti, M. D., Harriss, E., Frost, C., & Sharpe, M. (2018). The prevalence of depression in

general hospital inpatients: a systematic review and meta-analysis of interview-based

studies. *Psychological Medicine, 48*(14), 2285-2298.

https://doi.org/10.1017/S0033291718000624

Weare, R., Green, C., Olasoji, M., & Plummer, V. (2019). ICU nurses feel unprepared to care for

patients with mental illness: A survey of nurses' attitudes, knowledge, and skills. *Intensive*

& Critical Care Nursing, 53, 37-42. https://doi.org/10.1016/j.iccn.2019.03.001

Wei, Y., McGrath, P. J., Hayden, J., & Kutcher, S. (2015). Mental health literacy measures

evaluating knowledge, attitudes and help-seeking: a scoping review. *BMC Psychiatry,*

15(291), 291. https://doi.org/10.1186/s12888-015-0681-9

Weichert, I. (2019). The prevalence and impact of psychiatric comorbidity in inpatients admitted

to a district general hospital in England: a 1-week cross-sectional study. *The Journal of the*

Royal College of Physicians of Edinburgh, 49(3), 237-244.

https://doi.org/10.4997/JRCPE.2019.314

Woon, L. S., & Redzuan, N. I. (2019). Characteristics of patients referred for consultation-liaison

psychiatry in a regional referral hospital in Malaysia. *Malaysian Journal of Psychiatry,*

28(1) http://mjpsychiatry.org/index.php/mjp/article/viewFile/496/379

Yao, Y., Zhao, S., Gao, X., An, Z., Wang, S., Li, H., Li, Y., Gao, L., Lu, L., & Dong, Z. (2018).

General self-efficacy modifies the effect of stress on burnout in nurses with different

personality types. *BMC Health Services Research, 18*(1), 667.

https://doi.org/10.1186/s12913-018-3478-y

Yıldırım, S. (2019). Examination Of Knowledge And Practices Of Nurses About Consultation

Liaison Psychiatry Nursing. *Journal of Psychiatric Nursing,*

https://doi.org/10.14744/phd.2019.21548

Yıldız-Feyzioğlu, E., Akpınar, E., & Tatar, N. (2013). Monitoring students' goal setting and

metacognitive knowledge in technology-enhanced learning with metacognitive prompts.

Computers in Human Behavior, 29(3), 616-625. https://doi.org/10.1016/j.chb.2012.11.019

Zou, C., Chen, S., Shen, J., Zheng, X., Wang, L., Guan, L., Liu, Q., & Yang, Y. (2018).

Prevalence and associated factors of depressive symptoms among elderly inpatients of a

Chinese tertiary hospital. *Clinical Interventions in Aging, 13*, 1755-1762.

https://doi.org/10.2147/CIA.S170346