How to Cite:
Subih, M., & Nofal, B. (2022). Nurses' Knowledge, Attitudes, and Practices towards Using Physical Restraints in Intensive Care Units: A cross-sectional study. *International Journal of Health Sciences*, *6*(S9), 3961–3972. https://doi.org/10.53730/ijhs.v6nS9.13540

Nurses' knowledge, attitudes, and practices towards using physical restraints in intensive care units: A cross-sectional study

Maha Subih, RN, PhD
Assistant Professor, Faculty of Nursing, Al-Zaytoonah University of Jordan
Amman, 11733, Jordan
Email: maha.subih@zuj.edu.jo

Basema Nofal, RN, PhD
Assistant Professor, School of Nursing, Applied Science Private University
Amman, 11931, Jordan
Corresponding author email: b_nofal@asu.edu.jo

***Abstract*---**Background: With the fact that physical restraints is widely used in intensive care units, further studies are needed to set a baseline for evidence-based practice and to develop regulations. Aim: To examine Jordanian ICU nurses' knowledge, attitudes, and practices of physical restraints. Methods: A descriptive cross-sectional design was applied using online survey. A convenience sample of 145 nurses filled out the questionnaire who were registered nurses with at least one year of experience in ICU. In addition to demographic data sheet, they completed a 3-domain questionnaire; levels of knowledge, attitudes, and practices regarding using physical restraints. Results: Participants' scored relatively low on knowledge (*M*= 3.3/11, *SD*= 1.8), moderate on attitudes (*M*= 29.4/48, *SD*= 3.8), and moderate on practices regarding physical restraint (*M*=23.2/42, *SD*= 7). Results revealed that participants' practice of physical restraint had a positive correlation with both their knowledge and attitudes. Many significant differences were noticed based on participants' characteristics. Conclusion: Local guidelines should be legislated to regulate nurses' and other care providers' PR practices to maintain patient safety and avoid legal consequences. Also, educational programs are needed to promote nurses' knowledge and attitudes and compliance toward the acceptable guidelines regarding PR.

***Keywords*---**Nurses' Knowledge, Attitudes, Intensive Care Units.

Introduction

Physical restraints (PR) used to control patients'' movements, prevent them from removing tubes or harming themselves and promote medical treatment without interruptions (Li & Fawcett, 2014; Nasrate, Shamlawi, & Darawad, 2017). Mainly, restraints are used in the intensive care units (ICU) with patients who are elderly, have altered level of consciousness, ICU psychosis, and agitation (Kaya & Dogu, 2018; Li & Fawcett, 2014). Although PR is not considered the best protective measure among ICU patients, it protects them from falls and injuries (Goethals, Dierckx de Casterlé, & Gastmans, 2012). Further, PR is more likely to be used in ICU than other departments due to many invasive procedures and tubes, in addition the environment in ICU itself may cause agitation from alarm sounds, disruption of sleep, and fears (Stinson, 2016). However, this practice had serious complications such as death and strangulation (Berzlanovich, Schöpfer, & Keil, 2012).

The use of PR is still controversial and debatable. From the patients' or families' perspective, PR might be considered a form of assault or even false imprisonment (Suliman, Aloush, & Al-awamreh, 2017). Therefore, patient comfort and dignity should be taken in consideration, and PR should not be used as a routine, and a rational for using it should be clarified to patients and their families (Suliman et al., 2017).

Studies conducted in Jordan showed that nurses applied PR with no approval by physician or patients' families (Suliman et al., 2017). Also, other studies found low knowledge, insufficient information about alternative methods, and in adequate documentation, in addition to lack of guidelines and protocols on the use of PR, which represents as a serious problem (Almomani, Khater, Qasem, & Joseph, 2021; Nasrate et al., 2017; Suliman et al., 2017).

Nurses' knowledge and attitudes towards PR may influence their practice. However, many studies found nurses' knowledge regarding PR to be inadequate, and their attitudes to be negative (Azab & Negm, 2013; Eskandari, Abdullah, Zainal, & Wong, 2017; Janelli, Stamps, & Delles, 2006). Also, there was a lack of awareness on the consequences of PR (Azab & Negm, 2013) and ethical issues concerning patients' and families' rights regarding the use of PR (Eskandari et al., 2017). Decision of using PR faced with dilemma and it is not easy on the nurses to use it, which may contribute to guilt feelings (Suen et al., 2006).

Lack of adequate studies on the practice of PR and the nurses' knowledge in the Jordanian context leaves the healthcare system with no evidence for practice. With the fact that PR is widely used in ICU, further studies are needed to set a baseline for evidence-based practice and to develop regulations. Therefore, the purpose of this study was to examine Jordanian ICU nurses' knowledge, attitudes, and practices of PR. Specifically, it aimed to answer the following research questions:

1. What is the level of Jordanian nurses' knowledge of PR in the ICU?
2. What are the Jordanian nurses' attitudes regarding PR use in the ICU?
3. What are the Jordanian nurses' practices of PR in the ICU?

4. Are there differences in the Jordanian nurses' knowledge, attitudes and practice of PR
   Based on their socio-demographic characteristics and work-related factors?

Methods

Design & Setting

A descriptive cross-sectional design was utilized using online survey through Google Forms. Participant were invited to participate using the survey link Posted on various social media platforms including Facebook, WhatsApp, and Instagram.

Sampling

The target population of this study include all Jordanian nurses working in various ICU specialties. A convenience sampling technique was used. The posted inclusion criteria included being (a) a registered nurse, (b) working full time in any adult ICU, and (c) had at least one year of experience in ICU. The sample size was calculated using the G*Power 3.1.10 program (Faul, Erdfelder, Buchner, & Lang, 2009) using power= 0.80, α= .05, and medium effect size 0.5 applying analysis of variance (ANOVA) test. The estimation revealed that 128 participants will be required.

Measures

The questionnaire package of the study had two parts, where the first part consisted of participants demographic (age, gender, years of experience, marital status, educational level, and type of ICU) and work-related variables (patient: nurse ratio, type of working shift, working hours per week, receiving in-service training courses). The second part measured levels of knowledge, attitude, and practices regarding using PR (Janelli, Scherer, & Kuhn, 1994).

The knowledge part includes 11 items testing nurses' information on using PR. The correct answer is awarded one mark, and the wrong answer is awarded zero, giving a score range from 0 to11 with higher scores indicating better level of knowledge. The second part consists of 12 items measuring nurses' attitudes toward PR using a 4-point Liker scale ranging from 1 "*Strongly Disagree*" to 4 "*Strongly Agree*". The score range is between 12 and 48 with higher scores indicating better attitudes. Items 4, 9, 10, 12 were reverse-coded. The final part consists of 14 items evaluating nurses' practice of PR using a 3-point Likert scale ranging from 1 "never" to "always" with a score range between 14 and 42, where higher scores represent positive PR practices (Gandhi et al., 2018). Also, item number 10 is negatively worded and was reverse-coded.

The scale was found to be valid and reliable by many previous studies in different countries (Nasrate et al., 2017; Stinson, 2016). The content validity index (CVI) of the original questionnaire was .86 (Janelli et al., 2006). In the current study, Cronbach's alpha of knowledge, attitudes, and practices scales were .70, .65, .92, respectively.

Data Collection Procedure

Data collection was conducted electronically using Google Forms. The questionnaire link was initially sent to the ICUs' head nurses from various health sectors in Jordan. Also, the survey link was posted on various social media platforms including Facebook and Instagram. As data were collected during the COVID-19 pandemic, the online data collection helped to minimize potential risks of infection and allowed greater maintenance of confidentiality.

Ethical Consideration

Ethical approval was obtained from Institutional Review Board committees at the selected hospitals. Confidentiality was maintained through coding the collected data. Filling out the questionnaire of the study was considered as an implied consent. Only the researchers were able to obtain the completed questionnaire. Permission to use the physical restraint questionnaire was obtained from the original author.

Data Analysis

The Statistical Package for Social Sciences (SPSS) version 25.0 was used (IBMCorp Ibm, 2017) for data analysis. Univariate statistics such as frequencies, percentages, means, and standard deviations were used to describe the sample and the main study variables. Inferential statistics such as Pearson correlation, independent sample t-test, and ANOVA were used to examine the differences in participants' knowledge, attitudes and practices of PR based on their characteristics.

Results

A total of 145 nurses completed the study questionnaire. Participants' mean age was 30.7 (SD= 5.2) years old (Range= 21-50). Their average working years was 7.7 (SD= 4.9) years (Range= 1-30), and the average working hours in ICU/week were 40 (SD= 8.6) hours. Most of them were males (50.7%, n=74), married (62.8%, n= 91), had a Baccalaureate degree (74.8%, n= 107), had received in-service physical restraints training (77.2%, n= 112). They determined to work in Coronary Care Unit (43.9%, n= 64), in all shifts (79.3%, n= 115) with a nurse: patient ratio of 1:3 (39.6%, n= 57). Table 1 presents a description of participants' characteristics.

Knowledge regarding physical restraint use

Participants' mean score on knowledge regarding physical restraint was relatively low (*M*= 3.3/11, *SD*= 1.8). With regards to individual items, many misunderstandings and lack of knowledge was noted (Table 1). For example, the majority (64.1%, n= 93) agreed that "*Restraints should be used when one cannot watch the clients closely*". Similarly, safety was an issue where only 23 (15.9%) nurses agreed on "*When a client is restrained, skin breakdown may increase*". The area of patients' rights had similar misunderstandings where 106 participants (74.1%) disagreed that "*It is the patient's right to refuse PR*", and 105 (72.4%) also disagreed "*PR needs consent from family members*".

Table (1): Participant's knowledge towards using physical restrains (N=145)

Items	Agree n (%)	Disagree n (%)
1. Physical restraints are safely vests or garments designed to prevent injury.	29 (20)	116(80)
2. Restraints should be used when one cannot watch the clients closely.	93(64.1)	52(35.9)
3. Clients are allowed to refuse to be placed in a restraint.	37(25.5)	106(73.1)
4. A physical restraint (safety vest, garments) requires a consent form from the family member.	40(27.6)	105(72.4)
5. A restraint should be released every 2 hours, if the client is awake.	23(15.9)	121(83.4)
6. Restraints should be put on snugly so that there is no space between the restraint and the client's skin.	62(42.8)	83(57.2)
7. When a client is restrained, skin breakdown may increase.	23(15.9)	122(84.1)
8. When a client is restrained in bed, the restraint should not be attached to the side rail.	48(33.1)	97(66.9)
9. A client should never be restrained while lying flat in bed because of the danger of choking.	30(20.7)	115(79.5)
10. Good alternatives to restraints do not exist.	25(17.2)	119(82.1)
11. Deaths have been linked to the use of vest restraints.	75(51.7)	69(47.6)

Attitudes regarding physical restraint use

Participants' mean score of attitudes towards PR was moderate (*M*= 29.4/48, *SD*= 3.8). While more than half (54.9%, n= 73) had positive attitudes towards participants' safety as they agreed on "*I believe that PR increases the risk of strangulation*", only 76 (52.4%) of them agreed with that "*A client suffers a loss of dignity when placed in PR*". It was noticed that participants showed low level of empathy with patients in PR, where only 42 nurses (28.9%) agreed with that "*It makes me feel bad when clients become more disoriented after the PR have been applied*" and 63 (43.5%) agreed with "*It makes me feel bad if the clients get more upset after PR are applied*". Also, only 69 (47.6%) of them felt embarrassed when a family member enters the room of a patient on PR. Rather, participants were more concerned about legal protection for themselves and their institutions as 54 (37.2%) agreed with "*It is important to apply restraints to assure legal protection for myself and my center*". Detailed attitudes responses are illustrated in Table 2.

Table (2): Participant's attitudes towards using physical restraints (N=145)

Items	Agree/Strongly Agree n(%)	Disagree/Strongly Disagree n(%)
1. I feel that family members have the right to refuse the use of restraints.	73(50.3%)	72 (49.7%)
2. If I were the client, I feel I should have the right to refuse or resist when	69(50.3%)	76(52.4%)

	restraints are placed on me.		
3.	I feel guilty placing a client in restraints.	63(43.5%)	80(55.1%)
4.	I feel that the main reason that restraints are used is that our center is short staffed.	80(55.1%)	64(44.1%)
5.	I feel embarrassed when the family enters the room of a client who is restrained.	69(47.6%)	76(52.4%)
6.	It makes me feel bad if the clients gets more upset after restraints are applied.	48(47.6%)	94(66.2%)
7.	It makes me feel bad when clients become more disoriented after the restraints has been applied.	42(28.9%)	101(69.6%)
8.	A client suffers a loss of dignity when placed in restraints.	76(52.4%)	68(47.6%)
9.	It is important to apply restraints to assure legal protection for myself and my center.	54(37.2%)	90(62.5%)
10.	I feel that placing a client in restraints can decrease nursing care time.	79(54.5%)	65(44.8%)
11.	I believe that restraints increase the risk of strangulation.	73(50.3%)	71(48.9%)
12.	I believe that restraints decrease the number of clients who fell.	52(35.9%)	92(63.4%)

Practices of physical restraint

Again, participants moderately scored on practices related to PR (*M*=32.5/42, *SD*= 7.2). A high percentage of participants (95.1%, n= 136) reported that they always/sometimes try alternative nursing measures before restraining the client. Among other positive practices is that 119 nurses (82.7%) stated that they always or sometimes restrain patients only with physicians' orders, and 110 (78.1%) suggest to a physician when they feel that patient does not need to be restrained. On the other hand, participants reported negative practices such as using PR when they are short of staff (75.7%, n= 109). Detailed practices responses are illustrated in Table 3.

Table (3): Participant's practices of physical restraints (N=145)

Items	Always n(%)	Sometimes n(%)	Never n(%)
1. I try alternative nursing measures before restraining the client.	72(50.3)	64(44.8)	7(4.9)
2. When I restrain a client, I make this decision only with a physician's order.	60(41.7)	59(41)	25(17.4)
3. When I feel that the client does not need to be restrained, I make this suggestion to the doctor.	71(50.4)	39(27.7)	31(22)

4. I answer the call for the client who is restrained as soon as possible.	72(50.3)	42(29.4)	29(20.3)
5. I check the restraints at least every two hours to make sure they are in the proper position.	81(56.3)	31(21.5)	32(22.2)
6. I inspect the skin of the client for abrasion or skin tears if I bath the client who is restrained.	76(52.8)	47(32.6)	21(14.6)
7. I tell family members why the client is restrained.	83(58)	41(28.7)	19(13.3)
8. I explain the reason to the client why the restraint is being applied.	80(55.9)	41(28.7)	22(15.4)
9. I tell the client when the restraint(s) will be removed.	69(47.9)	49(34)	26(18.1)
10. More clients are restrained when we are short of staff than we have a full staff.	46(31.9)	63(43.8)	35(24.3)
11. In our center, staff members work together to discover ways to control clients' behavior other than the use of physical restraints.	55(38.2)	63(43.8)	26(18.1)
12. I frequently assess when the restraint should be removed.	81(56.6)	46(32.2)	16(11.2)
13. When physical restraint is applied, I record the type of restraint use, the reason of adopting it, the time when the application commences, and the related nursing care required on the kardex.	60(41.7)	62(43.1)	22(15.3)
14. I frequently evaluate and record down the effect of physical restraint when it is applied on a client.	59(41)	67(46.5)	18(12.5)

Differences in participants' knowledge, attitudes, and practices of physical restraints based on their characteristics

Participants had many differences concerning study variables based on their characteristics (Table 4). For instance, results demonstrated a significant difference in knowledge of PR, where nurses who had in-service training had a higher mean score of knowledge than those who did not ($P < .001$). Also, nurses who have postgraduate degree had a higher knowledge score than their counterparts ($P < .001$). Significantly, higher mean of positive practices was noticed among nurses who worked with a patient: nurse ratio of 1:4 had ($P < .01$), those who mentioned using PR always ($P < .01$), and nurses who reported working on night shift ($P < .001$). Regarding the continuous characteristics, significant negative correlation was found for attitudes subscale with both age ($r = - 0.18$, $P < .01$), and years of experience ($r = - 0.17$, $P < .01$), which means that older and more experienced nurses tend to have more negative attitudes. Also, the practice subscale showed negative correlation with both years of experience ($r = -0.24$, $P < .001$) and working hours ($r = -0.29$, $P < .001$), which means that positive practices

of PR increases among less experienced nurses and among those working fewer hours.

Table (4): Participants' differences in knowledge, attitudes, and practices of physical restraints based on their demographic and professional characteristics

Characteristics	Knowledge	Attitude	Practice
	Mean (SD)	Mean (SD)	Mean (SD)
Gender			
Male	3.1 (1.7)	29.2 (3.6)	22.7 (6.9)
Female	3.5 (1.9)	29.6 (3.9)	23.7 (7.1)
Marital status			
Married	3.3 (1.7)	28.99 (3.9)	23.2 (7.1)
Unmarried	3.3 (1.9)	30.1 (3.5)	23.2 (6.9)
Academic level			
Diploma	3	29.6	26.1
Baccalaureate	3.12	29.5	22.5
Post graduate	**4.25 ****	28.9	25.2
In-service training regarding physical restrains			
Yes	**3.31 (1.9) ****	29.3 (3.8)	23.1 (6.8)
No	3.28 (1.4)	29.8 (3.7)	23.5 (7.6)
Type of ICU			
Medical	2.6	28.2	21.6
Surgical	5	30.2	29.4
CCU	3.36	29.6	22.5
Neuro	3	31	32
Nurse: Patient ratio			
1:1	2.83	31	18.83
1:2	3.42	29.1	23.3
1:3	3.38	28.9	21.98
1:4	3.20	30	**25.7***
Frequency of using physical restrains			
Always	4.24	29.96	**29.4***
Sometimes	3.06	29.4	21.4
Never	3.5	28.2	24
Working shift			
Morning/Day Shift only	3.5	29.02	26.3
Night shift only	4.7	29	**35.4****
All shifts	3.2	29.5	21.7

Discussion

The current study evaluated Jordanian nurses' knowledge, attitudes, and practices of PR. Such study is needed within Jordanian hospitals due to the high rates of PR use and lack of guidelines within those hospitals. In addition, nurses nowadays use PR more often due to the increased workload caused by high number of COVID-19 patients admitted to ICUs with a shortage of nurses in hospitals, especially at night shifts.

In general, participants exhibited low knowledge, but moderate positive attitudes and practices of PR. Further, they showed many misunderstandings regarding using PR. Among our study, 80% disagreed with that PR is a safe intervention designed to prevent injuries, however they still use it. Such result was consistent with Balci and Arslan, 2018. Consistent with Kaya and Dogu (2018), the majority of our sample knew that PR had alternatives, but it seemed that they were not using it frequently. Eskandari et al. (2017) suggested that they might be unaware of the various types and advantages of PR alternatives, which should be listed as a hot topic in hospital in-service training courses.

Unexpectedly, a high percentage of the participant disagreed with that PR should be released every two hours or that patients should be never be restrained while lying in bed. Such results indicate the increased risk for patient to develop complications of such as chocking or even death (Azab & Negm, 2013; Eskandari et al., 2017). Increasing awareness among nurses would promote their awareness and reduce patients' risks. Another disappointing finding was that participants did not think that it is a patient's right to refuse PR, or they should take family's consent. Some literature support this finding (Balci & Arslan, 2018; Birgili & Izan, 2019; Kahraman et al., 2015) while other were inconsistent (Karagözoğlu & &Özden, 2013; Kaya & Dogu, 2018). According to Suen et al. (2006) stated that poor knowledge about PR may influence both nurses' attitudes and practices, which was the case among our participants. Also, the lack of the guidelines could have contributed to this shocking outcome, for which nurses are in deep need for education about the guidelines to be followed during the application of PR along with their responsibilities.

Regarding attitudes, participant generally had positive attitudes but had negative attitudes regarding some areas. For example, they showed no guilt feeling towards using PR, and did not feel bad if the restrained patient gets upset or become disoriented, and disagreed with that PR leads to patient' loss of dignity. Such attitudes were found by previous studies (Eskandari et al., 2017; Kaya & Dogu, 2018), could contribute to ethical problems and improper practices. Again, this indicates the need to increase nurses' awareness of the ethical and legal issues, and inform them about patient and their families' rights regarding PR. Social pressure seems to have an effect in this case, where the majority felt embarrassed when family enter the room of a restrained patient (55.6%). This is similar to previous studies conducted in different countries including Jordan (Suliman et al., 2017), India (Kaur, 2016), and Turkey (Birgili & Izan, 2019).

Regarding nurses' practices of PR, participants generally had positive practices. Among the positive practices always trying alternatives before using PR, always checking restraints at least every two hours, assessing skin for abrasion or tears, and assessing patients when restraints should be removed. Such findings are encouraging these practices would prevent complications and help to decide to continue with restraints or not. Obtaining a physician order was another positive practice, which was also reported by Suliman et al. (2017). However, Birgili and Izan (2019) stated that although decision is a physician order, it is still nurses' responsibility to assess patient's responses and monitor consequences.

Even though nurses did not frequently have patient or family consent for PR, at least they informed them why they use it. Similar result was reported by many previous studies (Azab & Negm, 2013; Eskandari et al., 2017; Kaya & Dogu, 2018), which confirms the social pressure that would promote nurses' practices. According to Suliman et al. (2017), Jordanian nurses consider PR a protective intervention for the patients so it does not need patient or family consent. Such unsatisfactory practices could expose nurses to legal and ethical responsibilities, which indicates the necessity of training them on both aspects.

Differences in knowledge, attitudes, and practices scores of physical restraints with personal and work-related factors

Participants with higher educational level and those who reported having previous in-service education training had higher knowledge regarding PR, which supports including PR as a fixed title in nursing orientation and continuing education programs (Nasrarte et al., 2017). Also, junior nurses with lower years of experience had more positive attitudes towards the use of PR, which was inconsistent with Gandhi et al. (2018) who found nurses with more years of experience to have more favorable attitudes, and Stinson (2016) who found no differences in nurses' attitudes based on years of experience.

Finally practice subscale was better among nurses with less experience, nurses who reported working less hours, and with higher nurse: patient ratio, and who worked on night shift only. A possible explanation for these results is the willingness of the Jordanian nurses to restraint their patients because of being busy with the high number of patients they look after. Balci and Arslan (2018) supported such consclusion by stating that the night shift usually has low number of nurses, more workload, and more agitated patients at night in ICUs.

Results revealed that participants' practice of PR had a positive correlation with both their knowledge and attitudes. Indeed, limited are studies that have examined the relationship between these variables in the context of PR, especially among Jordanian ICUs. Our results was supported by many previous studies (Azab & Negm, 2013; Eskandari et al., 2017). Other studies found correlation with either knowledge or attitudes. For instance, Almomani et al. (2021) found a significant relationship between knowledge and practice of PR, while Abd Elhameed and Elemam (2020) found a positive relationship between attitudes and practice. Conversely, other studies concluded that there was no relationship between nurses' knowledge, attitude, and practice of PR (Kaya & Dogu, 2018; Khalil, Al Ghamdi, & Al Malki, 2017)

Existing publications indicate that no consensus has been reached on practice issues and attitudes regarding the use of PR in ICU, or identifying the exact factors (demographic or work related) that affect PR practices. Hence, there is a need to carry out more studies that use actual practices to further examine such relationships.

Limitations

Measuring participants' attitudes and practices of PR using self-reported questionnaires constituted the main limitation of this study, for which it is suggested to be measured using an observational approach. Also, this study used a convenience sample, which could affect the generalizability of its results. However, having a sample recruited from different geographical areas using online survey in Jordan constitutes a strength point, so we could access nurses from various hospitals.

Conclusion

This study explored Jordanian ICU nurses' knowledge, attitudes, and practices of PR in Jordan. Positive correlation between nurses' practices of PR with both knowledge and attitudes was noticed. More positive attitudes was noticed among the junior and less experienced nurses, while knowledge was better among highly educated and those who received in-service education. Many shortcomings were noticed in participants' practices and attitudes such as not having a signed consent form signed from patients or their families, and not considering ethical and legal problems issues while applying PR, while considering PR as a protective intervention. More local guidelines should be legislated to regulate nurses' and other care providers' PR practices to maintain patient safety and avoid legal consequences. Also, educational programs are needed to promote nurses' knowledge and attitudes and compliance toward the acceptable guidelines regarding PR.

References

Abd Elhameed, S. H., & Elemam, N. I. (2020). Nurses' knowledge, intention and attitude towards the use of physical restraint in geriatric care. *IOSR Journal of Nursing and Health Science*, 9(1), 30-38.

Almomani, M. H., Khater, W. A., Qasem, B., & Joseph, R. A. (2021). Nurses' knowledge and practices of physical restraints in intensive care units: An observational study. *Nursing Open*, 8(1), 262-272.

Azab, S., & Negm, L. A. (2013). Use of physical restraint in intensive care units (ICUs) at Ain Shams University hospitals, Cairo. *Journal of American Science*, 9(4), 230-240.

Balci, H., & Arslan, S. (2018). Nurses' information, attıtude and practices towards use of physical restraint in intensive care units. *Journal of Caring Sciences*, 7(2), 75.

Berzlanovich, A. M., Schöpfer, J., & Keil, W. (2012). Deaths due to physical restraint. *Deutsches Ärzteblatt International*, 109(3), 27.

Birgili, F, & İzan, F. (2019). The knowledge, attitudes and practices of nurses in relation to the use of physical restraints. *International Journal of Health Sciences*, 7(1), 18-25.

Eskandari, F., Abdullah, K. L., Zainal, N. Z., & Wong, L. P. (2017). Use of physical restraint: Nurses' knowledge, attitude, intention and practice and influencing factors. *Journal of Clinical Nursing*, 26(23-24), 4479-4488.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160.

Gandhi, S., Poreddi, V., Palaniappan, M., Reddy, N., Sai, S., & BadaMath, S. (2018). Indian nurses' knowledge, attitude and practice towards use of physical restraints in psychiatric patients. *Investigacion y Educacion en Enfermeria*, 36(1).

Goethals, S., Dierckx de Casterlé, B., & Gastmans, C. (2012). Nurses' decision-making in cases of physical restraint: a synthesis of qualitative evidence. *Journal of Advanced Nursing*, 68(6), 1198-1210.

Janelli, L. M., Stamps, D., & Delles, L. (2006). Physical restraint use: a nursing perspective. *Medsurg Nursing*, 15(3).

Kahraman, B. B., Asiret, G. D., Yildirim, G., Akyar, I., Aytekin, G. K., & Oz, A. (2015). Opinions of Family Caregivers on the Use of Physical Restraints in Intensive Care Unit/Yogun Bakimda Fiziksel Kisitlamaya Iliskin Hasta Yakinlarinin Gorusleri. 6(3), 78-84.

Karagözoğlu, Ş., & &Özden, D. (2013). Information and practices of physical restrictions of nurses working in a university hospital. *Journal of Research and Development in Nursing*, 15(1), 11-22.

Kaur, B. J. (2016). Knowledge and practice of physical restraints among nurses. *Journal of Nursing Today*, 3(2), 22-28.

Kaya, H., & Dogu, O. (2018). Intensive care unit nurses' knowledge, attitudes and practices related to using physical restraints. *International Journal of Caring Sciences*, 11(1), 61-70.

Khalil, A. I., Al Ghamdi, M. A. M., & Al Malki, S. (2017). Nurses' knowledge, attitudes, and practices toward physical restraint and seclusion in an inpatients' psychiatric ward. *International Journal of Culture and Mental Health*, 10(4), 447-467.

Li, X., & Fawcett, T. N. (2014). Clinical decision making on the use of physical restraint in intensive care units. *International Journal of Nursing Sciences*, 1(4), 446-450.

Nasrate, H., Shamlawi, A., & Darawad, M. W. (2017). Improving ICU nurses' practices of physical restraints in Jordan: effect of an educational program. *Health*, 9(12), 1632.

Stinson, K. J. (2016). Nurses' attitudes, clinical experience, and practice issues with use of physical restraints in critical care units. *American Journal of Critical Care*, 25(1), 21-26.

Suen, L., Lai, C., Wong, T., Chow, S., Kong, S., Ho, J., ... & Wong, I. (2006). Use of physical restraints in rehabilitation settings: Staff knowledge, attitudes and predictors. *Journal of Advanced Nursing*, 55(1), 20-28.

Suliman, M., Aloush, S., & Al-Awamreh, K. (2017). Knowledge, attitude and practice of intensive care unit nurses about physical restraint. *Nursing in Critical Care*, 22(5), 264-269.