# Fall Risk and Related Factors in Hemodialysis Patients

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**Abstract**. The risk of falling is a common risk of resulting in injury. It is caused by environmental and psychological factors that can cause injury. The IKP report found that there were cases of adverse events due to patients falling 14.1%, NPC due to falls 18.53%, and falling patients resulting in 5.15% injury. The phenomenon that was found in the work area in the Batam RSPB room, it was found that 0.003% of patients fell. This study was conducted to determine the factors associated with the risk of falling in hemodialysis patients at the Batam Management Agency Hospital 2020. Research methods with quantitative methods. The sample consisted of 40 HD patients at Bp Batam Hospital in 2020 with the sampling technique, namely total sampling. The data were processed using the chi-square test. Univariate analysis of the results of the characteristics of nurses. Bivariate results showed that there was a relationship between walking aids (p value 0.027) and cognitive function (p value 0.006) with the risk of falling and there was no significant relationship between the environment and the risk of falling. Therefore, it is hoped that HD patients can know the importance of preventing the risk of falling so that complications due to the risk of falling can be prevented early

**Keywords**: Risk of Fall, Hemodial, patient

## 1  Introduction

The hospital as a health service provider must pay attention to and ensure patient safety. Hospitals are organizations that are at high risk for patient safety incidents caused by human error. Mistakes against safety are most often caused by human error related to risks in terms of safety, and this is caused by failure of the system in which the individual is working. (Ashar 2016)

Fall risk is a patient who is at risk for falling which is generally caused by environmental and physiological factors that can result in injury. The fall risk category is divided into three, namely the risk of falling is low, the risk of falling is medium, and the risk of falling is high. The cause of the risk of falling can be caused by intrinsic factors in the form of a previous history of falls, decreased visual acuity, walking behavior and attitude, musculoskeletal system, mental status, acute illness, and chronic disease. In terms of extrinsic factors, it can be in the form of medication, bathroom, building design, floor surface conditions, lack of lighting. In patients undergoing hemodialysis, factors that have a potential risk of falling are age, history of disease, and use of blood thinners. (Joint Commission International (JCI) 2019)

The impact of the incident falls can lead to events that are not expected as lacerations, fractures, head injury, bleeding, until death, and traumatic psychological, extend the treatment time and increase the cost of patient care as a result of using diagnostic tools that really do not need to do such as CT Scan, X-ray etc. The impact on the hospital itself is that it creates the risk of lawsuits because they are considered negligent in patient care (Miake-Lye 2015)

Reporting to WHO in the United States in the " *To Err Is Human, buliding a Safer Health System* " reported IKP (Incident safety of patients) in the form of patient falls in inpatient care in hospitals, the events that occurred that is the KTD (Genesis Not Expected) about 3 -16% that occurs in American hospitals. WHO (World Health Organization) found cases of KTD (Unexpected Incidence) with patients falling in the range of 3.2-16.6% of hospitals in various countries, namely America, England, Australia, and Denmark. (Morse 2015)

IKP report by KKP-RS (Patient Safety Committee-Hospital) in Indonesia in January-April 2018, found that the reporting of cases of KTD (Genesis Unexpected) patient falls (14.41%) and KNC (Genesis Almost Injury) due falls (18.53%), and the patient fell which resulted in an unexpected event (5.15%). The XXI Persi Congress in Jakarta on November 8 2018 also reported that the incidence of falling patients in Indonesia from January to September 2017 was 14%. (Ministry of Health of the Republic of Indonesia 2017)

Hemodialysis (HD) is a process used in patients who are acutely ill and require short-term dialysis therapy (several days to several weeks) or patients with end-stage renal *disease* (ESRD) who require long - term or permanent therapy.. The purpose of hemodialysis is to remove toxic nitrogen substances from the blood and remove excess water. (Suharyanto 2019)

According to research conducted by (Fristantia, Agnes 2016) states that the factors associated with the risk of falling in the elderly who live at home are heart problems (*p value* = 0.006), limb disorders *(p value* = 0.002), nervous disorders *(p value* = 0.024), visual impairment *(p value* = 0.004), hearing loss *(p value = 0.007),* walking aids *p value = 0.000),* environment (*p value = 0.003.* So it can be concluded that intrinsic factors and extrinsic factors are very significant factors. associated with the occurrence of falls in the elderly.

Based on a preliminary study conducted by researchers through observations and interviews with the Head of Nursing Management for the Hemodialysis Room RSBP on October 3, 2020, data was obtained that the HD Room already had reports of patient falls. During the year 2019 there were 18 incident report data, and 2 patients fell fall events causing patient injury caused by non-optimal nurses in providing services. The hemodialysis room has 11 machines and the total number of nurses who carry it out is 7 people.

Based on data on October 3, 2020, to the head of the room in the Hemodialysis room, the fall rate during 2019 was 0.003%. Regarding the number of patients in the hemodialysis room, a total of 1,127 patients with 5,395 actions underwent hemodialysis during 2019. Based on the results of observations in the room on October 3, 2020, it was seen that each treatment room already had a Morse fall risk assessment scale attached to each the nurse's room, the patient's fall risk assessment format is available in the form of a photocopy sheet, but it has not been integrated with the patient's status. Patients who are at high risk of falling are given a yellow pin on the identification bracelet to indicate that the patient is a high risk patient who is undergoing hemodialysis. (Batam Control Agency Hospital 2019)

Most cases of falls in patients were found and studied in the elderly, but from the results of observations and preliminary studies conducted in the Hemodial Room at RSBP Batam, it was found that 0.003% risk of falling was not only the elderly. Therefore, researchers are very interested in conducting research on factors related to the risk of falling in HD patients at RSBP Batam.

## 2    Methods

This research design is *descriptive correlative,* which aims to determine the relationship of the two variables and explain the relationship of the two variables. The variables studied were cognitive function, walking aids, environment and risk of falling. Research methods that can be

done by researchers using *cross sectional.* The population was HD patients at BP Batam Hospital with a total sample size of 40 respondents, the criteria for patients who were more than 18 years old and all patients who underwent routine HD with *total sampling technique.* The measuring instruments used were MoCA *(Montreal Cognitive Assessment)* and Morse Fall Scale (MFS). Data analysis was done by using *chi square* test.

## 3 Results and Discussion

From the research that has been done, the following results are obtained:

### 3.1 Characteristics of Respondents

**a. Characteristics of HD Patient Respondents based on Gender and Occupation.**

**Table 1.** Frequency Distribution of Respondents, Sex and Occupation in the Hemodial Room in February 2021

| No. | Characteristics | Frequency | Percentage (%) |
|---|---|---|---|
| 1 | **Gender** | | |
| | Man | 20 | 50 |
| | Women | 20 | 50 |
| 2 | **Profession** | | |
| | Does not work | 19 | 47.5 |
| | Civil servants | 05 | 12.5 |
| | Pension | 04 | 10 |
| | entrepreneur | 12 | 30 |

Based on the gender of the respondents in this study, women and men were the same, the number of female respondents was 20 respondents (50%), while men were 20 respondents (50%). Based on the job characteristics of the respondents, 19 respondents (47.5%) did not work, 4 respondents retired (10%), civil servants had a number of responses (12.5%) and retired 4 respondents (10%).

**b. Characteristics of HD Patient Respondents based on Gender and Occupation.**

**Table 2.** Distribution of education frequency, age and history of disease in the Hemodial Room in February 2021

| No. | Characteristics | Frequency | Percentage (%) |
|---|---|---|---|
| 3. | **Education** | | |
| | No school | 8 | 20 |
| | SD | 6 | 15 |
| | Junior High | 6 | 15 |
| | High school | 15 | 37.5 |
| | College | 5 | 12.5 |
| 4. | **Age** | | |
| | Adult | 36 | 90 |
| | Elderly | 4 | 10 |
| 5. | **History of disease** | | |
| | Hypertension | 22 | 55 |
| | Diabetes mellitus | 18 | 45 |

Based karakteristik education respondents have a wide range pendidika n which includes not school number 8 respondents (20%), SD 6 respondents (15%), junior 6 respondents (15%), SMA 15 respondents (37, 5%) and peguruan Ting gi a number of 5 respondents (12.5%).

## 3.2 Univariate Analysis

**Table 3.** Distribution of Respondents Frequency Based on Cognitive Function in the Hemodial Room in February 2021

| Characteristics | Frequency | Percentage (%) |
|---|---|---|
| Normal | 19 | 47.5 |
| Annoyed | 21 | 52.5 |
| **Total** | **40** | **100** |

Table 3 shows that cognitive function in this study has several characteristics consisting of a normal number of 19 respondents (47.5%), disturbed by 21 respondents (52.5%).

**Table 4.** Distribution of Respondents' Fresquency of Using Walking Aid in the Hemodialysis Room in February 2021

| Characteristics | Frequency | Percentage (%) |
|---|---|---|
| Nothing | 24 | 60 |
| There is | 16 | 40 |
| **Total** | **40** | **100** |

Table 4 shows that the number of respondents who use assistive devices is 24 respondents (60%) and 16 respondents (40%) who do not use walking aids.

**Table 5.** Frequency Distribution of Respondents About a Good Environment in the Hemodialysis Room in February 2021

| Characteristics | Frequency | Percentage (%) |
|---|---|---|
| No risk | 32 | 80 |
| It's risky | 8 | 20 |
| **Total** | **40** | **100** |

Table 5 shows that there are 32 respondents who have a Non-risk environment (80%) and 8 respondents (20%) who are at risk.

**Table 6.** Frequency Distribution of Respondents Based on the Morse Fall Scale of the Hemodialysis Room in February 2021

| Characteristics | Frequency | Percentage (%) |
|---|---|---|
| Don't be a risk | 10 | 25 |
| Be Low risk | 5 | 12.5 |
| Be risks High | 25 | 62.5 |
| **Total** | **40** | **100** |

Table 6 Addressing that the response is not be the risk of a number of 10 respondents (25%), be risk low 5 respondents (12.5%) and be the risk of a high number of 25 respondents (62.5%).

### 3.3 Bivariate Analysis

a. **Analysis of Cognitive Function Relationships with Fall Risk In Patients HD in RSBP Batam.**

Table 7. Spearman statistical test results with cognitive function and risk of falling in HD patients at RSBP Batam

| Function Cognitive | Risk of Fall | | | | | | Total | | r | p value |
|---|---|---|---|---|---|---|---|---|---|---|
| | Not Be a risk | | Low | | High | | N | % | | |
| | N | % | N | % | N | % | | | | |
| Normal | 8 | 42.1 | 4 | 21.1 | 7 | 36.8 | 19 | 100 | 10,165 | 0.006 |
| Annoyed | 2 | 9.5 | 1 | 4.8 | 18 | 85.7 | 21 | 100 | | |
| | 10 | 25 | 5 | 12.5 | 25 | 62.5 | 40 | 100 | | |

The results of the chi-square statistical test in table 7 show that the disruption of cognitive function is the higher the risk of falling. The results of the statistical test showed that there was a significant relationship between cognitive function and the risk of falling with a weak correlation strength with a value of r = 10,165 and the direction of the positive correlation was obtained by the analysis of p = 0.006 (<0,05) which showed that there was a significant relationship between cognitive function and the risk of falling..

b. **Analysis of the relationship between walking aids and the risk of falling in HD patients at RSBP Batam.**

Table 8. The results of the Spearman statistical test for walking aids with the risk of falling in HD patients at RSBP Batam

| Device Street | Risk of Fall | | | | | | Total | | r | p value |
|---|---|---|---|---|---|---|---|---|---|---|
| | Not Be a risk | | Low | | High | | N | % | | |
| | N | % | N | % | N | % | | | | |
| Nothing | 3 | 12.5 | 2 | 8.3 | 19 | 79.2 | 33 | 100 | 7,250 | 0.027 |
| There is | 7 | 43.8 | 3 | 18.8 | 6 | 37.5 | 23 | 100 | | |
| Total | 10 | 25 | 5 | 12.5 | 25 | 62.5 | 40 | 100 | | |

Table 8 shows that using a walker has a risk of falling with the results of statistical tests, the results of the analysis are p = 0.027 (> 0,05) which shows that there is a relationship between the use of a walker and the risk of falling with a strong correlation with a value of r = 7,250 and the direction of correlation. positive.

c. **Analysis of Environmental Relationship with the Risk of Falling in HD Patients at RSBP Batam.**

Table 9. Results of Environmental Spearman Statistical Test with Risk of Falling in HD Patients at RSBP Batam

| Environment | Risk of Fall | | | | | | Total | | R | p value |
|---|---|---|---|---|---|---|---|---|---|---|
| | Not Be a risk | | Low | | High | | N | % | | |
| | N | % | N | % | N | % | | | | |
| No risk | 6 | 18.8 | 4 | 12.5 | 22 | 68 | 32 | 100 | 3,500 | 0.174 |
| It's risky | 4 | 50 | 1 | 12.5 | 3 | 37.5 | 8 | 100 | | |
| | 10 | 25 | 14 | 12.5 | 25 | 62.5 | 40 | 100 | | |

Table 9 shows that a good environment does not have a risk of falling with the statistical test results obtained by the analysis result of 0.174 (> 0,05) which shows that

there is no environmental relationship with the risk of falling with very weak correlation strength with a value of r = 3,500 and a positive correlation direction.

## 4    Discussion

### 4.1    Walking aids
Based on the results of the research, there were 16 HD patients who did not wear walking aids. In line with Ashar's research (2016) where there are 16 respondents who use walking aids from 38 respondents, walking aids can help balance the body. Selection of a walker must be in accordance with individual needs, body anatomy shape and angle of the elbow must be considered when selecting a walker in order to get professional assistance and help with a balanced gait. Independence in HD patients can be assessed from their daily abilities independently such as eating, bathing, moving, going to the bathroom and getting dressed. The emergence of dependence. HD patients can be caused by several causes, namely age, physiological health, cognitive function, psychology, and health services. Dependence of someone on other people or a device will make HD patients feel useless and limited all their activities (Safitri, Zulfitri, and Utami 2019).

### 4.2    Environment
Based on the results of the study, 32 respondents who have a risky environment have HD patients and 8 respondents who have a risky environment. This statement is inversely proportional to the results of a study by Jamebozorgi et al (2017) in Azhar (2016) which explains that poor environment is one of the causes for HD patients to fall in Tehran *Hospital,* where 72.3% of HD patients have a high risk of falling from 125 respondents.. A bad environment can be seen from the environment of the house, bedroom, stairs, hallway, bathroom (Mauk, 2016). Awareness of the family in an effort to reduce the risk of falls is very important, by the way provide a safe environment for patients with HD as the floors are not slippery, arrangement of items tidy, well lit and provide on this ladder can reduce the risk of the causes of falls in patients with HD (Agustina, 2014).

### 4.3    Cognitive Function
Based on the results of research with the criteria of being disturbed as many as 21 respondents. The factors that influence the number of cognitive disorders in HD patients are because many respondents in this study did not go to school so that it affected the results of high cognitive function scores, in line with the research of Wildan, Ma'ruf and Djauhari, 2017 which stated that the lower the education, the effect on cognitive function., this is because the use of different brain functions in educated and uneducated people. In addition, the age factor will affect the mindset, concentration and intellectual of HD patients. Some respondents experienced severe cognitive impairment because HD patients did not train their cognitive functions such as singing, discussing and reading. In line with Rahayu's (2020) research with the results of 26.7% of respondents who experience high cognitive impairment and a high risk of falling from the number of 50 respondents, as a person ages, a person will experience a decrease in the number of neurochemicals which will affect the amount of neirotransmitter choline which results in decreased cognitive function of the brain, where HD patients can not remember the past, the mental nervous center and intelligence are disturbed.

The decrease in this amount causes disturbances in the central nervous system, resulting in a decrease in brain mass and cerebral blood flow, which causes aritrocytes to proliferate which results in changes in serotonin and dopamine coupled with an increase in the value of

urea creatinine in the brain which affects cognitive function, thereby increasing the activity of monoaminoxidation enzymes. which increases the disruption of *activity of dail living* which causes HD patients to have a high risk of falling (Murtiyani, Hartono, Suidah & Pangertika, 2017).

### 4.4 Risk of Fall

Research results The risk of falling on HD patients at RSBP Batam is HD patients with high risk with a total of 25 respondents and respondents who are over 65 years of age who will experience a decrease in balance, in line with the research of Dharvage (2016) with the results of p = 0.001 and OR = 5,661 which means HD patients tend to experience repeated falls 5,661 times at the age of more than 65 years. The physical activity of HD patients is one of the factors in HD patients who are at risk of falling, HD patients who are not active in physical activity will have a higher risk than active HD patients because the activities of HD patients will affect their balance and body flexibility (Gunawan, 2016). Flexibility is the ability of a joint and muscle to move easily and comfortably, flexibility is influenced by many factors such as muscles, tendons, ligaments, age, gender, body temperature and joint structure. Lack of flexibility can cause body movements to be sluggish and prone to muscle injury. (Yanti and Armayanti 2016)

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The decrease in this amount causes a disturbance in the central nervous system, resulting in a decrease in brain mass and brain blood flow which makes arrhythrocytes proliferate which results in changes in serotonin and dopamine coupled with an increase in the value of urea creatinine in the brain which affects cognitive function, thereby increasing the activity of monoaminoxidation enzymes. which increases the disruption of *activity of dail living* which causes HD patients to have a high risk of falling (Murtiyani, Hartono, Suidah & Pangertika, 2017).

Based on the results of research, HD patients who did not wear walking aids were 16 respondents. In line with Ashar's research (2016) where there are 16 respondents who use walking aids from 38 respondents, walking aids can help balance the body. The selection of a walker must be in accordance with individual needs, the anatomy of the body and the angle of the elbow must be considered when selecting a walker in order to get professional assistance and help with a balanced gait. Independence in HD patients can be assessed from their daily abilities independently such as eating, bathing, moving, going to the bathroom and getting dressed. The dependence on HD patients can be caused by several causes, namely age, physiological health, cognitive function, psychology, and health services. Dependence of

someone on other people or a device will make HD patients feel useless and limited all their activities (Idris and Kurnia 2017).

### 4.5 The Relationship between Cognitive Function and the Risk of Falling in HD Patients at RSBP Batam.

The results of the Spearman test on the relationship between cognitive function and the risk of falling in HD patients at RSBP Batam obtained a value of p = 0.006, which means that there is a relationship between cognitive function and the risk of falling in HD patients at RSBP Batam. With age there will be a decrease in brain function, which causes HD patients to experience a decrease in brain weight of about 10-20% at the age of more than 30 years, several studies say that even without neurodegenerative disease, HD patients experience changes in brain structure. Cerebrovascular changes are associated with cognitive deterioration that results in the risk of falling (Sagala 2020).

HD patients who experience cognitive impairment but the risk of falling is low because of their undisturbed motor skills and a supportive environment for HD patients, besides HD patients who do not have a high risk of falling because of their motor skills in moving well even though the ability to think and remember is decreased (Alvita and Huda 2018) Signs and symptoms of a HD patient experiencing cognitive impairment are a language disorder where the HD patient mentions objects or images that are pointed to him, memory disorders, namely HD patients quickly forget what they have done, emotional disturbances, visuospatial disorders, namely HD patients often forgetting time, forgetting the faces of friends and often not knowing the place so it's easier to get lost (Murtiyanti, Hartono, Suidah & Pangertika, 2017).

### 4.6 Relationship between walking aids and the risk of falling in HD patients at RSBP Batam.

The results of the *chi square* test of the relationship between walking aids and the risk of falling in HD patients at RSBP Batam obtained a value of 0.027 or < 0.05, which means that there is a relationship between walking aids and the risk of falling in HD patients at RSBP Batam. The results of the spearmen can be seen that the use of a walker has no effect on the risk of falling. This study contradicts the results of research by Idris & Kurnia (2017) which states that there is a relationship between the use of walking aids and the risk of falling in HD patients, there is a relationship because HD patients who use walkers have movement disorders or difficulty in walking so that walking aids are needed. to help with daily activities and to support body weights that are not strong because the balance of the body begins to decrease which results in an increased risk of falling.

This study itself, there is no relationship between the use of a walker with the risk of falling because there are other factors that cause no relationship between the two variables, namely because HD patients who are in HD are active in participating in exercise which causes the body balance in HD patients is good so that the risk of falling is decreased.. It is in line with Yanti & Armayanti's research (2018) which states that there is a relationship between HD patient exercise activeness and body balance in HD patients because exercise in HD patients is shown to strengthen, endurance and flexibility of bones and joints, so that the decreased musculoskeletal system can be improved, exercise for HD patients also useful for maintaining heart fitness and decreased balance in HD patients.

In tune with the research Alvita da Dita (2018) which states there is a relationship gymnastics balance with the risk of falls in patients with HD in the Unit of Social Rehabilitation Margomukti Semarang with impairment of the level of risk of falling of the risks being to the risk is low, because the balance is the ability to maintain body balance when changing position,

if the body balance in HD patients is not trained it will cause major problems to the quality of life in HD patients such as falls and results in injury.

### 4.7 Environmental Relationship with Risk of Fall in HD Patients at RSBP Batam.

The results of the Spearman test on the relationship between the environment and the risk of falling in HD patients at RSBP Batam obtained a significance value of 0.174 or> 0.05, which means that there is no relationship between the environment and the risk of falling in HD patients. In general, the environment has a very close influence on the risk of falling because one of the factors that affect falling HD patients is an unsafe environment (Achmanagara, 2012). The fall factor relates to the environment, especially the home environment, where the house is a place of daily activities. Poor housing arrangement becomes a threat of accidents or falls on family members, especially HD patients (Shoba 2005 in (Hutomo 2015)).

This is in line with the research conducted by Hutomo (2015) entitled "The Relationship between Home Environment Arrangement and the Risk of Fall. For HD patients in the village of Karangwuni Wates Kulonprogo, who got p = 0.035, which means there is a relationship between house arrangement and the risk of falling. The results of the analysis of this study did not have a relationship between the environment and the risk of falling in HD patients because from the observations of the researchers, most respondents still received support from their families and because of the conditions of respondents who lived in rural areas, whose people still uphold the custom of respecting older people. Where people believe that if they do not respect their elders, they will get sin. Family support is very influential with the daily activities of HD patients, in line with the research conducted (Setyabudi 2016) which obtained a value of p = 0.000 which means there is a relationship between family support and the risk of falling at Notoyudan RW 24 Pringgokusuman Yogyakarta.

## 5    Conclusion

Based on research and data processing carried out by researchers, there was a significant relationship between the use of assistive devices and cognitive functions on the risk of falling in the HD room of RSBP Batam, and there was no significant relationship between the environment and the risk of falling in the HD room of RSBP Batam.

## References
[1] Alirudin, Christine, and Alvin Hendellyn. 2020. " Profile of Cognitive Function Disorders in Hemodialysis Patients at the Wangaya Regional General Hospital." 3: 42–46. Doi: 10.1016 / j.chb.2009.10.013
[2] Alvita, Galia Wardha, and Solikhul Huda. 2018. "The Effect of Balancing Gymnastics with the Risk of Falling on the Elderly at the Margomukti Rembang Social Rehabilitation Unit." Proceedings of Heah 2: 48–5 5. Doi: 10.1016 / j.chb.2018.10.33 3
[3] Asr. 2016. "Perceptions of Risk Factors for Elderly People at the Budi Mulia 4 Margaguna Nursing Home, South Jakarta." UIN Syarif Hidayatullah Jakarta. Available from the Proquest Dissertation & Theses Database. (UIN SYARIF No. 327681).
[4] Brunner. 2016. Medical Surgical Nursing. Jakarta: EGC.
[5] Cahyaning, Amalia. 2015. "The Effect of Return On Assets, Executive Characteristics and Dimensions of Good Corporate Governance Against Tax Avoidance (Empirical Study of Manufacturing Companies Listed on the IDX 2007-2015 Period)." Publication manuscript. Muhammadiyah Surakarta university.
[6] Ministry of Health of the Republic of Indonesia. 2017. National Hospital Patient Safety Guidelines (Patient Safety). Jakarta. http://kemenkes.go.id

[7]   Goddess. 2017. Textbook of Gerontic Nursing. Yogyakarta: deepublish.

[8]   Dharma. 2015. Nursing Research Methods. accessed from http: //google.books/382uehhhwjjsfd.

[9]   Batam Control Agency Hospital. 2019. Hemodial Medical Records. Batam.

[10]  Safitri, Maya, Reni Zulfitri, and Sri Utami. 2019. "The Relationship between the Psychosocial Health Conditions of the Elderly and the Level of Independence of the Elderly in Daily Activities at Home.": 2.

[11]  Sagala, Wahyu Gunawan. 2020. "Daily Activities and Quality of Life for Hemodialysis Patients at Imelda General Hospital." Imelda Nursing Scientific Journal 6 (1).

[12]  Setyabudi, Rahayu. 2016. "The Relationship between Family Support and the Risk of Falling at Home in LAnsia in Notoyudan RW 24 Pringgokusuman Yogyakarta.": 1–11.

[13]  Smeltzer. 2016. Brunner and Suddarth's Textbook of Medical –Surgical Nursing. Jakarta: EGC.

[14]  Yep. 2016. "Accuracy of Validated Falls Risk Assessment Tools and Clinical Judgment Citation." Center for Clinical Effectiveness, Monash Innovation and Quality, Monash Health, *Melbourne, Australia.:* 1–13.