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# Self-Efficacy as a Predictor of Interdialytic Weight Gain (IDWG) in End Stage Renal Disease Patients

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## Abstract

Excessive interdialytic weight gain in End Stage Renal Disease (ESRD) patients may reduce their quality of life well-being. High self-efficacy (belief in one's own ability) can increase the patient's readiness to live a better quality of life. The purpose of this study is to ascertain how interdialytic weight gain (IDWG) and self-efficacy relate to each other in patients with end-stage renal disease. This study uses a correlational quantitative design type with a cross-sectional method approach. The sampling method used purposive sampling with a total of 107 respondents. Univariate data analysis test to determine the characteristics of respondents. The Spearman Rank correlation test is used in bivariate analysis to determine the relationship between two variables, while the cross sectional design is to analyze the relationship between variables that have been collected at one time simultaneously. The results of this study were 69 patients (64.5%) had low self-efficacy and a moderate IDWG category of 56 patients (52.3%). The Rank-Spearman test results obtained a p-value of 0.000 and a positive Spearman correlation value (r) of 0.565. The conclusion that can be drawn is that there is a strong and significant relationship between self-efficacy and IDWG in patients with end stage renal disease. The suggestion from this study is that hospital managers consider making policies related to the service and care of ESRD patients by providing regular education related to fluid restriction compliance by applying media in the form of educational videos or leaflets or posters in the waiting room.

**Keywords:** Self-efficacy, Interdialytic, IDWG, ESRD.

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## 1. INTRODUCTION

In end stage renal disease (ESRD) patients, the kidneys have been irreversibly damaged, so the kidneys lose their function to filtrate and eliminate waste and excess fluid from the blood. ESRD patients need dialysis therapy (hemodialysis) to replace the kidneys (Priska & Herlina, 2019). Interdialytic weight gain that can be accepted by the body of ESRD patients is no more than 1.0-1.5 Kg (3% of dry body weight) (Wayunah & Saefulloh, 2022). Non-compliance with dialysis management can lead to hypervolemia and potentially dangerous complications (Mundakir et al., 2019). In some cases, chronic renal failure can stop kidney function completely and life threatening.

The prevalence of ESRD patients undergoing hemodialysis is always increasing. The proportion of the world's chronic kidney failure population is estimated to reach 11% to 13% in 2018. According to the data Riskesdas (2018) in the population aged ≥ 15 years, showed a significant increase between 2013-2018 of chronic kidney failure in Indonesia, from 0.2% to 0.38% (Badan Penelitian dan Pengembangan Kesehatan, 2019). According to data from the Indonesian Renal Registry (2018), there were 132.142 active dialysis patients and 66.433 new patients. In addition, data on the prevalence of new chronic kidney failure patients with the highest number in 2018 is held by West Java Province, followed by East Java Province as the second with a total of 9.607 new chronic kidney failure patients. The visits in the last 3 months in 2023 at IHC Lavalette Hospital Malang, including in October 2023 were 4.432 visits, in November were 4.260 visits, and in December were 4.196 visits.

Fluid intake and thirst are factors that greatly affect fluid balance in patients with ESRD, so it is necessary to limit fluid intake (Safitri et al., 2022). The incidence of complications in patients undergoing hemodialysis can be effectively reduced by increasing adherence to a diet high in protein, potassium, sodium and performing fluid restriction. Interdialytic Weight Gain (IDWG) balance in ESRD patients can be maintained by implementing dietary arrangements. in his research, Wijayanti et al., (2021) emphasized that the better the control of IDWG, the quality of life of ESRD patients will also improve. Based on research conducted by Fazriansyah et al., (2018) also showed that there is a strong relationship between adherence to minimizing fluid consumption and IDWG in patients undergoing hemodialysis, where IDWG measurement in this case is useful for evaluating patient adherence to fluid restriction management and low salt diet (Priska & Herlina, 2019).

Self-efficacy is a belief that determines how a person thinks, motivates himself, and makes decisions to achieve expected goals (Junika et al., 2023). Individual involvement of ESRD patients undergoing hemodialysis to form compliance in implementing dialysis management is needed, because patients with good self-efficacy will show enthusiasm, willingness, and high motivation in controlling IDWG to achieve the expected quality of life. One of the things that affects motivation and self-regulation processes in several ways is self-efficacy beliefs. These beliefs can influence the decisions people make and the actions they will take (Gerbino, 2020). In a previous study by Wayunah & Saefulloh (2022) shows that there is a relationship between self-efficacy and IDWG with Bandura's modified General Self Efficacy instrument which consists of three components, namely: magnitude, strength, generality. This study will use the Chronic Kidney Disease Self Efficacy (CKD SE) instrument test tool modified by Lin which consists of four components, namely: autonomy, self integration, problem solving, and seeking social support as the differentiator (Lin et al., 2012).

The purpose of this study is to ascertain how interdialytic weight gain (IDWG) and self-efficacy relate to each other in patients with end-stage renal disease at IHC Lavalette Hospital in Malang City.

## 2. RESEARCH METHOD

This research is a type of correlational analytic quantitative research with a cross sectional method approach, ethical number No. DP.04.03/F.XXI.31/0232/2024. This study was conducted in the Hemodialysis Room of IHC Lavalette Hospital, Malang City on April 18-30, 2024. The population in this study were ESRD patients undergoing hemodialysis at IHC Lavalette Hospital, Malang City. The sampling method used was purposive sampling or based on predetermined inclusion and exclusion criteria. Inclusion criteria in this study include: 1) ESRD patients routinely undergo a hemodialysis schedule 2 times a week, 2) ESRD patients with experience undergoing hemodialysis ≤ 1 year, 3) ESRD patients who can be weighed standing up, and 4) ESRD patients who are cooperative in communication. Exclusion criteria in this study include: 1) ESRD patients who were not cooperative in communication, 2) ESRD patients who have undergone hemodialysis for more than one year, and 3) ESRD patients who did not routinely perform hemodialysis 2 times a week were excluded from this study. Based on the sampling technique used, 107 respondents were obtained. The research variables include the dependent variable (IDWG value) and the independent variable (self-efficacy). The research instruments used were the Chronic Kidney Disease Self-Efficacy (CKD SE) questionnaire developed by Lin, et al., (2012) which was modified in Indonesian by Pane et al., (2023) and observation sheets and the Interdialityc Weight Gain (IDWG) calculation formula.

Data collection techniques include preparation and implementation stages. The preparation stage deals with correspondence and licensing. The implementation stage of this study was carried out for 4 meetings (with a time interval between meetings of 3 days in patients undergoing hemodialysis 2 times a week according to a predetermined schedule). At the first meeting, the CKD SE questionnaire was filled in and post-hemodialysis body weight was measured. The second and third meetings measured the patient's weight before and after hemodialysis. At the fourth meeting, only weight measurements were taken before hemodialysis, until IDWG values 1, 2, and 3 were obtained. Furthermore, processing can be done by finding the average value of the three IDWG values. IDWG value categorization is mild if < 4%; moderate if 4 - 6%; and severe if > 6% (Wayunah & Saefulloh, 2022). Measurement of self-efficacy based on the CKD SE instrument by giving a score value to each statement in accordance with the provisions including: unsure statements are given a value of 1, less sure are given a value of 2, sure are given a value of 3, and very sure are given a value of 4. The level of self-efficacy will be classified as high, if the total score value ≥ the overall mean value and classified as low, if the total score value < the mean value (Wulandari, 2020).

After the data was collected, the information was processed. Univariate data analysis test to determine the characteristics of respondents. The Spearman Rank correlation test is used in bivariate analysis to determine the relationship between two variables, while the cross sectional design is to analyze the relationship between variables that have been collected at one time simultaneously.

## 3. RESULTS AND DISCUSSION

**Table 1.** Mean Frequency of Respondents Based on Interdialytic Weight Gain and Self-Efficacy (4 Sub Variables) at IHC Lavalette Hospital Malang City (n=107).

| Indicator | n | Mean | Std. Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| Interdialytic Weight Gain | 107 | 3.24 | 1.33 | 0.00 | 6.29 |
| Self Efficacy | 107 | 81.53 | 5.817 | 67 | 102 |
| Autonomy | 107 | 23.65 | 2.548 | 16 | 32 |
| Self Integration | 107 | 20.89 | 2.912 | 13 | 28 |
| Problem Solving | 107 | 18.27 | 2.280 | 11 | 24 |
| Seeking Social Support | 107 | 12.68 | 1.470 | 10 | 16 |

Table 1 shows that the mean IDWG of respondents is 3.24 (standard deviation 1.33), which indicates patients with moderate IDWG, with a minimum value of 0.00 and a maximum of 6.29. In the self-efficacy category, the mean value of respondents' self-efficacy was 81.53

(standard deviation 5.817). Thus, respondents with values < 81.53 are classified as having low self-efficacy, while respondents with values greater than or equal to 81.53 are classified as having high self-efficacy. in this self-efficacy category the minimum value is 67 and the maximum is 102.

Table 1 also shows that there are 4 sub-variables of self-efficacy including: the autonomy sub variable is the highest self-efficacy sub variable, with a minimum value of 16 and a maximum value of 32, with an average of 23.65 (standard deviation 2.56). The self-integrity sub variable has a minimum value of 13 and a maximum value of 28, with an average of 20.89 (standard deviation 2.912). The problem solving sub variable has a minimum value of 11 and a maximum value of 24, with an average of 18.27 (standard deviation 2.280). The sub variable of seeking social assistance has a minimum value of 10 and a maximum value of 16, with a sub variable average of 12.68 (standard deviation 1.470). Respondents with a value of the self-efficacy sub variable (4 dimensions) less than the average are classified into low category self-efficacy sub variables, otherwise if the value shows more than equal to the average listed, it is categorized as high.

**Table 2.** Cross Distribution Between 4 Sub-Variables of Self-Efficacy with Self-Efficacy Category at IHC Lavalette Hospital Malang City (n=107).

| Sub variable Self Efficacy | n | p-value | r | Category Sub variable | n Self Efficacy | |
|---|---|---|---|---|---|---|
| | | | | | High | Low |
| Autonomy | 107 | 0.107 | 0.157 | High | 28 | 42 |
| | | | | Low | 9 | 28 |
| Self Integration | 107 | 0.000 | 0.351** | High | 33 | 38 |
| | | | | Low | 4 | 32 |
| Problem Solving | 107 | 0.000 | 0.705** | High | 27 | 4 |
| | | | | Low | 10 | 66 |
| Seeking Social Support | 107 | 0.000 | 0.651** | High | 29 | 9 |
| | | | | Low | 8 | 61 |

Table 2 shows that the autonomy sub variable has a p-value of 0.107 (>0.05) which means that there is no significant and relevant relationship between the autonomy sub variable and the self-efficacy category in ESRD patients. The Spearman correlation value (r) of 0.157 indicates a correlation with a weak level of closeness. The self integration sub variable has a p-value of 0.000 (<0.05) which means that there is a significant and relevant relationship between the self integration sub variable and the category of self efficacy in ESRD patients. The Spearman correlation value (r) of 0.351 shows a positive correlation direction with a sufficient level of closeness. The problem solving sub variable has a p-value of 0.000 (<0.05) which means that there is a significant and relevant relationship between the problem solving sub variable and the category of self efficacy in ESRD patients. The Spearman correlation value (r) of 0.705 shows a positive correlation direction with a strong level of closeness. The sub variable seeking social support has a p-value of 0.000 (<0.05), which means that there is a significant and relevant relationship between the sub variable seeking social support and the category of self efficacy in ESRD patients. The Spearman correlation value (r) of 0.651 indicates a positive correlation direction with a strong level of closeness.

The highest number of respondents with low self-efficacy was located in patients with sub-variables in the low problem solving category as many as 66 respondents and low social support seeking as many as 61 respondents. In addition, respondents with low self-efficacy also showed that they had high autonomy sub variables as many as 42 patients and high self-integrity as many as 38 patients.

**Table 3.** Cross Distribution between Characteristics with Self-Efficacy and Interdialytic Weight Gain among Respondents at IHC Lavalette Hospital Malang City (n=107).

| Characteristics | Category | n | Self Efficacy | | Interdialytic Weight Gain | |
|---|---|---|---|---|---|---|
| | | | f | f | f | f |
| Age (Year) | 18-40 | 17 | 5 | 12 | 4 | 13 |
| | 41-60 | 55 | 20 | 35 | 28 | 27 |
| | >60 | 35 | 12 | 23 | 19 | 16 |
| Gender | Male | 53 | 15 | 38 | 25 | 28 |
| | Female | 54 | 22 | 32 | 26 | 28 |
| Education | Elementary School | 21 | 5 | 16 | 7 | 14 |
| | Junior High School | 30 | 11 | 19 | 15 | 15 |
| | Senior High School | 42 | 16 | 26 | 23 | 19 |
| | Diploma | 3 | 1 | 2 | 1 | 2 |
| | Undergraduate | 11 | 4 | 7 | 5 | 6 |
| Work | Working | 25 | 13 | 12 | 13 | 12 |
| | Not Working | 82 | 24 | 58 | 38 | 44 |
| Past History of Disease | Hypertension | 31 | 10 | 21 | 12 | 19 |
| | Diabetes Mellitus (DM) | 14 | 4 | 10 | 6 | 8 |
| | Other Disease (chronic renal failure/stroke/cardiac/polycystic/asthma/ kidney stones/cancer/tuberculosis/gout/ syndrome nephropathy/lupus) | 9 | 5 | 4 | 6 | 3 |
| | Hypertension dan DM | 21 | 7 | 14 | 12 | 9 |
| | Hypertension & Other Disease | 20 | 9 | 11 | 10 | 10 |
| | DM & Other Disease | 3 | 0 | 3 | 0 | 3 |
| | Hypertension, DM, Other Disease | 9 | 2 | 7 | 5 | 4 |
| Total | | 535 | 185 | 350 | 255 | 280 |

Table 3 illustrates that the majority of patients with low self-efficacy are owned by respondents with an age range of 41-60 (middle adulthood) as many as 35 patients, male gender as many as 38 patients, high school education as many as 26 patients, not working as many as 58 patients, and most have a previous history of hypertension alone as many as 21 patients. The table also explains that mild IDWG is mostly owned by patients with an age range of 41-60 years (middle adulthood) 28 patients, with a high school education of 23 patients, while patients with moderate IDWG are mostly owned by patients with the same category of male and female gender as many as 28 patients, with the category of respondents not working as many as 44 patients, and a previous history of hypertension alone as many as 19 patients.

**Table 4.** Correlation Test Results of Self-Efficacy with Interdialytic Weight Gain in End Stage Renal Disease Patients at IHC Lavalette Hospital Malang City (n = 107).

| | | Self-Efficacy | | Total | p-value | r |
|---|---|---|---|---|---|---|
| | | High | Low | | | |
| Interdialytic Weight Gain | Light | 32 | 19 | 51 | 0.000 | 0.565** |
| | Medium | 5 | 51 | 56 | | |
| | Heavy | 0 | 0 | 0 | | |
| Total | | 37 | 70 | 107 | | |

The p-value of 0.000 (<0.05) in Table 4 shows that there is a significant and relevant relationship between IDWG and self-efficacy in ESRD patients. The Spearman correlation value (r) of 0.565 indicates a positive correlation direction with a strong enough.

**Table 5.** Cross Distribution Between 4 Sub Variables of CKD Self-Efficacy with IDWG Category of Respondents in End Stage Renal Disease Patients at IHC Lavalette Hospital Malang City (n = 107).

| Self-Efficacy Sub-Variables | Category | Interdialytic Weight Gain | | | | Total | |
|---|---|---|---|---|---|---|---|
| | | Light | | Medium | | | |
| | | n | % | n | % | n | % |
| Autonomy | High | 37 | 34.6 | 33 | 30.8 | 70 | 65.4 |
| | Low | 14 | 13.1 | 23 | 21.5 | 37 | 34.6 |
| Self Integration | High | 42 | 39.3 | 29 | 27.1 | 71 | 66.4 |
| | Low | 9 | 8.4 | 27 | 25.2 | 36 | 33.6 |
| Problem Solving | High | 22 | 20.6 | 9 | 8.4 | 31 | 29 |
| | Low | 29 | 27 | 47 | 44 | 76 | 71 |
| Seeking Social Support | High | 27 | 25.2 | 11 | 10.3 | 38 | 35.5 |
| | Low | 24 | 22.4 | 45 | 42.1 | 69 | 64.5 |

Table 5. illustrates that the cross distribution between 4 sub variables of self- efficacy with IDWG category of respondents highest number of respondents with moderate IDWG is located in patients with sub-variables categorized as low social support as many as 45 respondents and low problem solving as many as 47 respondents. In addition, respondents with mild IDWG mostly showed high autonomy (37 respondents) and high self-integrity (42 respondents).

Permanent renal function failure and self-management of new situations make ESRD patients feel a loss of holistic aspects of themselves in the life that has been built (loss of self), including: health, sense of self-control, self-privacy, relationships and social status, roles, self-confidence, economy, lifestyle, future expectations, and daily activities. Low self-efficacy can result in a loss of self-confidence in living life with current conditions (Lenggogeni et al., 2021). ESRD patients with low self- efficacy will tend to have a high level of emotion, patients can show emotional attitude responses that are easily discouraged, negative mindsets, irritable (angry), and feelings of continuous self-blame for a failure or problem so that it has an impact on the level of patient compliance in undergoing ESRD treatment (Mardalia et al., 2022)

Based on four sub-variables of self-efficacy according to Lin et al., (2012) In the autonomy sub-variable of this study, most respondents were able and confident to tell their doctors about their current situation, face the challenges of living with chronic renal failure, can do whatever it takes to get answers to questions, and can comfortably ask health care providers about their current condition. This study is in line with research Mahmoud, (2015) explained that one of the coping strategies in ESRD patients is to maintain a positive attitude by gaining knowledge about disease- related issues and lifestyle modifications. In the self-integrity sub of

this study, most respondents relevantly stated that they were able to manage their diet in various social situations so as not to burden the work of their kidneys, consciously able to adjust self-management of chronic kidney failure to suit changes in new situations, able to change their diet according to recommendations, and able to manage chronic kidney failure disease experienced to stay healthy. Not in line with this statement, Mahmoud (2015) assessed complaints of fatigue, lack of energy, muscle cramps, and restrictions on patients' social life as some signs of physical and psychological stressors for hemodialysis patients.

In the sub-variable of problem solving in this study, most patients irrelevantly stated that they felt confused and unable to obtain information related to how to control chronic renal failure from various sources, on the other hand, respondents could understand the risk factors related to chronic renal failure, and take preventive measures to avoid complications with chronic renal failure. Self-efficacy of individuals who feel they have competent abilities can have a major effect on the mental status of patients (Mahmoud, 2015). This can basically affect their ability to overcome the problems they face. In the sub-variable of seeking social support in this study, most respondents irrelevantly stated that they were confident enough to seek help when depressed, discuss concerns, and ask for help when feeling not okay. This is in line with research Mahmoud (2015), according to the patient's strong desire to reduce the psychological impact of the disease on his family.

The stage of self-acceptance of grief according to Azizah et al. (2016) these include the denial stage, anger, bargaining, depression, and acceptance. According to the researcher, most respondents are still in the grieving period at the depression stage, where respondents have passed the anger, denial, and bargaining stages as evidenced by the value of autonomy and self-integrity beliefs to carry out high-value care. At this stage respondents have tried to see realistically and try to adjust to the current situation, albeit with compulsion, confusion, and deep sadness. At this stage the challenges faced by respondents are related to problem solving (information needs) and seeking social support from the environment.

In line with this, if you pay attention, there are 4 stages of the process of forming self-efficacy according to Wardani (2012) which include cognitive processes, motivational, affective, and selection. According to the researcher, respondents have reached the affective process (looking for problem solving) and the selection process (choosing the desired environment). So it is hoped that further respondents can reach the stage of acceptance of the grieving period and have well-formed self-efficacy. At the stage of grieving depression, the application of a good self-concept is very necessary. The way an individual views himself has a psychological aspect to acceptance, a realistic view will provide a sense of security and increase self-esteem (Azizah et al., 2016). Good self- efficacy of ESRD patients will demonstrate a form of self-management that applies problem-solving skills, decision-making in response to fluctuations in signs and symptoms, and taking action, as well as behavioral changes to achieve better survival (Isroin & Soejono, 2014).

Providing education related to dietary compliance and fluid intake is important to be encouraged by doctors, nurses, and families. In his research according Isroin & Soejono, (2014) explained that counseling related to food, fluid restriction, lifestyle modification, disease and treatment in patients with renal failure effectively acts as a means of improving patient self-management that can be carried out by the renal care team. Similar research was conducted by Tanujiarso et al., (2014) showed that providing fluid diet counseling was effective in controlling IDWG of hemodialysis patients. The application of counseling can provide benefits for patients to recognize, overcome the health problems faced and encourage individuals to seek and choose the most appropriate way to solve problems (Tanujiarso et al., 2014). In addition, education such as community service can increase hemodialysis patients' knowledge about limiting fluid intake as a preventive, promotive and rehabilitative effort to realize dry weight (Silaen et al., 2020). Based on research Chen et al. (2021) shows that with good health literacy in ESRD patients has the potential to positively influence understanding related to fluid restriction,

ability, and willingness to carry out fluid restriction, so as to reduce the increase in IDWG, and realize optimal health.

In his research, Oka, (2023) explained that there is a significant relationship between family support and compliance with fluid intake restrictions in patients with chronic renal failure undergoing hemodialysis. The healing process in patients can be influenced by family support, by obtaining family support the patient feels cared for, loved, and valued so that it can increase compliance in limiting fluid intake (Oka, 2023). Based on the results of research Chen et al. (2021) which shows that social support has a positive effect on ESRD patients to receive benefits from fluid restriction. Social support from the closest person can increase the patient's motivation to act better and obtain the expected benefits, with social support patients can find out more about the benefits and good fluid restriction methods (Chen et al., 2021). Social support for hemodialysis patients can come from people closest to the patient such as family and friends (Susilawati et al., 2018)

The results of the cross-distribution study between self-efficacy sub-variables and IDWG category mostly patients with moderate IDWG have low values of problem- solving self-efficacy sub-variables and seeking social support, while the autonomy and self-integrity sub-variables show high values with mild IDWG. In the category of problem solving sub-variables and low social support, improvement efforts in this case can be assisted by interventions by other related parties. ESRD patients who find it difficult to do problem solving, it can be recommended to be open by conducting face-to- face counseling directly with the renal care team counselor. This aims to provide understanding and help patients to find and choose a way out to solve their problems, especially related to minimizing interdialytic weight gain. Problem-solving efforts by ESRD patients will also be better if accompanied by adequate social support. Social support is needed by ESRD patients, with good quality social support, patients will feel facilitated and motivated to realize compliance, especially in limiting fluid intake in order to realize an optimal increase in mild IDWG and create the expected quality of life. Thus the possibility of complications due to uncontrolled increase in IDWG is minimal.

In her research Mardalia et al. (2022), patients who have been on hemodialysis for a long time have an easier time accepting and adapting to ESRD hemodialysis treatment. Whereas, newly diagnosed ESRD patients will tend to find it difficult to accept that the current situation is a very big decision and not easy. According to Wardani, (2012), One's self-efficacy can be obtained by mastering experience. That the experience of success can provide hope for one's success in shaping self-efficacy, while the experience of failure can have the effect of reducing one's confidence in one's abilities. A positive social environment will show positive values and experiences for ESRD patients in order to adapt to current self-management and step into the stage of acceptance of the grieving period.

The results of cross-distribution research between characteristics and self-efficacy and cross-distribution between characteristics and IDWG show some similarities that allow that low self-efficacy with moderate IDWG can be influenced by other factors besides length of hemodialysis, problem solving, and low social support. In both tables, the highest values are shown in the low self-efficacy and moderate IDWG columns, based on gender, the majority are owned by male respondents. This study is in line with research Wijayanti et al. (2023) states that men and women are at equal risk of IDWG elevation.

Based on occupation, the majority of low self-efficacy and moderate IDWG are owned by non-working patients. Kidney function failure causes respondents to experience physical changes so that they cannot do their jobs as before and dependence on others increases due to physical limitations and weaknesses (Maula, 2019). In some cases, this can trigger patient stress, especially in patients who have minimal activity and are more often at home so that there are no activities that can divert their desire to limit fluid intake. Increased fluid intake is an

individual response to stress that results in increased cardiac output, hypertension, and decreased tissue perfusion (Safitri et al., 2022).

Based on the history of the disease, the majority of respondents have a history of hypertension only. This is in line with research according to Mardalia et al. (2022) which states that the most dominant comorbidity in ESRD patients is caused by hypertension.. Hypertension can cause strokes, heart attacks, heart failure, and is the main cause of chronic kidney failure (Mardalia et al., 2022). Especially in patients with a history of uncontrolled hypertension, which causes complications of ESRD. Volume overload is one of the causes of increased systolic and diastolic blood pressure in ESRD patients undergoing hemodialysis (Symonides et al., 2023). Other factors such as age and education did not show similarities between low self-efficacy and moderate IDWG, and vice versa. This can be influenced by the experience gained by patients related to their disease.

Based on age, in this study, patients with low self-efficacy were mostly owned by respondents with ages ranging from 41-60 years (middle adulthood). This is inversely proportional to research by Suwanti et al., (2019) which states that respondents who have high self-efficacy are mostly in the age group 40-60 years, based on the stage of human development in this group of individuals has shown the ability to control emotions, thinking in dealing with problems is mature. According to Mustikasari, (2017), the age factor affects the level of patient compliance, where patients with young age tend to have a lower level of compliance than patients with older age. Meanwhile, the IDWG categorization with a mild increase is mostly owned by this age range. According to research conducted by (Priska & Herlina, 2019) age can affect IDWG because a decrease in thirst sensation can be caused by the aging process and cerebral dysfunction and decreased osmoreceptor sensitivity. This makes fluid intake reduced so as to reduce intradialysis weight gain.

Based on education, low self-efficacy and light IDWG were mostly owned by patients with the latest high school education. According to Suwanti et al., (2019), individuals with low education will have less experience than individuals with higher education. Self-efficacy owned by patients tends to be associated with the patient's level of education, when the patient's education is low, of course the knowledge and perspective they have is limited (Mailani et al., 2023). According to Wijayanti et al., (2023) the higher the level of education of an individual, the more critical, logical, and systematic his way of thinking will be. Thus, patients with higher education will be easier to understand and make decisions in this ESRD treatment.

## 4. CONCLUSION

In patients with end-stage renal disease, self-efficacy and IDWG are strongly and significantly correlated. The higher the self-efficacy of ESRD patients, the lighter the percentage of IDWG increase, and vice versa. Especially if it is associated with the 4 sub- subs in CKD self-efficacy, it will be more focused and easier in an effort to improve the self-efficacy of CKD patients to achieve the expected IDWG. This study does not escape the limitations, in future studies more detailed categorization can be done related to the length of hemodialysis, implementing periodic measurements related to IDWG, and determining whether there is continuity or difference with periodic interdialytic weight measurements to validate more accurate data related to IDWG values used for analysis. The suggestion from this study is that hospital managers consider making policies related to the service and care of ESRD patients by providing regular education related to fluid restriction compliance by applying media in the form of educational videos or leaflets or posters in the waiting room.

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