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## **Assessing Activity of Daily Living (ADL), Executive Functioning, and Nutritional Status among Elderly Who Reside in City and Rural Area in Central Java, Indonesia**

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### **Abstract**

The world's population is aging due to declining birth rates and increasing life expectancy. In Indonesia, it was initially projected that by the year 2020 the number of elder is 11.3% of the total population. Unfortunately, the increase in life expectancy among elderly is not always accompanied by a high quality of life or welfare due to physical weakness (physical frailty). The present study is a seminal project assessing factors contributed to welfare among elderly both cognitively and physically, namely the assessment of activities of daily living (ADL), executive functioning status, nutritional status in particular protein intake. Previous studies have been primarily investigating functional status among elder living in cities, therefore in this study we investigated differences of factors attributable to cognitive and physical status among elder who live in big city and rural area. Participants of the current study were 17 elderly (12 reside in city, and 5 reside in rural area), as due to CoViD-19 outbreak we could not gather more data as expected. We hypothesized that elderly who reside in rural areas were more active, cognitively intact, and exposed to nutritious diet compared with their counterparts who reside in city. Several measures were employed to assess ADL, executive function (Trail Making A & B, Five Point Test, Stroop Color Test, and Digit Span), and nutrition/protein intake. Statistical analysis using non-parametric Mann-Whitney Test revealed support of the hypothesis that ADL among elderly who live in city and rural area was significantly different ( $Z = -2.083$ ,  $p < .05$ ), with elderly living in rural areas better performed ( $M = 12.5$ ) in ADL than elderly living in city ( $M = 7.5$ ). However, we found no significant differences on both status of executive functions and nutritional/protein intake among these two groups

**Keywords:** elderly, activity of daily living (ADL), executive function, nutritional status, protein intake.

## Introduction

Data obtained from the UN World Population Prospects showed that Indonesia has a higher life expectancy than the average world population (Maliki, 2019). It is projected that in the year of 2095-2100 life expectancy of the world's population will reach an average of 81.8 years, while the Indonesian population can reach 84.5 years (United Nations, 2012). Higher life expectancy has a direct impact to the increased number of elders.

The increased number of elders is, at one point, a good signal of the advancement of science that reaching the age of the elderly has become more possible. On the other hand, elderly age group will experience a decline in bodily functions, including in their daily activities (Activity of Daily Living/ADL). The decline in body function occurs both natural reason and due to an illness. In the elderly the decline in bodily functions greatly impacts the quality of their daily activities.

Activity of Daily Living (ADL) is basic skills and occupational tasks that must be possessed by someone to care for themselves independently which is done in order to fulfill their role as individuals and in family and society (Setiahardja, 2005). ADL describes a person's functional capacity which is an important indicator of health in the elderly. The loss of capacity may cause an increase in morbidity and mortality. In addition, Xie et al. (2018) stated that persistent chronic disease and decreased ADL function in the elderly can reduce their ability to interact with the social environment, thus ultimately increasing the risk of depression in the elderly.

One of the factors that influence ADL is cognitive function. Scholars reported long-term and cross-section studies revealed a strong general decline in executive function in the elderly, even in the elderly with normal or natural aging group (Bell-McGinty, Pondell, Franzen, Baird & Williams, 2002; Cahn-Weiner et al., 2000; Royall, Palmer, Chiodo & Polk, 2004). Various decreases in executive function are suspected to lead to a decrease in one's ability to take care of themselves or a decrease in capacity in daily activities/ADLs.

The executive functions (EF) can also be a predictor of the ability to live independently in the elderly. EF contributes more variance in Activity of Daily Living (ADL) than other demographic characteristics such as general health status, age, and level of education (Cahn-Weiner, Boyle, & Malloy, 2002). Furthermore, Grigsby (in Cahn-Weiner et al., 2002) revealed evidence that EF deficits underlie functional decline, including physical function, in the elderly. EF, especially sequencing, is a significant predictor of ADL. Fogel (in Cahn-Weiner, et al., 2002) argues that examining the executive functions in the elderly has

significant implications for health policy with respect to determining the benefits of long-term care, identifying individuals who need care management, and health care planning.

In addition to executive functions, previous research also mentioned that nutritional status is a fundamental part of physical frailty and is important in preventing cognitive decline (Dominguez & Barbagallo, 2017). A person's nutritional status can be an indicator of the status of the activity function in one's daily life. Specifically, previous studies have shown that high-quality protein intake is beneficial for maintaining muscle protein anabolism, decreasing progressive loss of muscle mass during aging, and improving physical abilities in the elderly (Baum, Kim & Wolfe, 2016; Bernstein & Munoz, 2012; Isanejad et al., 2016; Lutz, Petzold & Albala, 2019). Therefore, it is important to identify and intervene the lack of protein intake in the elderly group in the prevention and treatment of cognitive declines such as dementia, Alzheimer's Disease, and Parkinson's.

Physiological changes are normal processes of aging that cause a decrease in basal metabolic rate, sense and smell problems, loss of appetite, and decreased cognitive abilities (Mahan & Raymond, 2017). These changes have an effect on increasing the elderly's need for nutrient-dense food. However, fulfilling the intake of nutrient-dense foods in the elderly is a challenge due to various factors that can interfere with food intake, food digestive system, and absorption of nutrients in the elderly (Bernstein & Munoz, 2012). Poor food intake in the elderly can cause nutritional frailty with the characteristics of weight loss and a reduction in body mass free fat (sarcopenia), which continues to physical frailty and leads to disability in the elderly (Bales & Ritchie, 2002).

In our previous research, we found evidence that there were differences in executive function between the elderly who live in nursing homes and those who live with families (Sulastri, Abimanyu, & Putri, 2019). The elderly who live with family have a better EF than the elderly who live at the nursing home. Elderly people in Indonesia who live in the nursing home are not usually of their own will, but due to the families who are no longer able to care for them. In the nursing home, the elderly also exposed to less activity on daily basis.

Some studies (Setiati, 2019) and research on the elderly who live in the nursing home (Setiabudi, 2019; Suyasa, 2019) involve more elderly who live in urban areas and less about the elderly who live in the rural areas. The conditions in the rural area present a high close family atmosphere. Some colleagues or neighbors often address each other as relatives (Susilawati, 2019). This is very different from the city situation which makes people act more indifferently (Pandaleke, 2015). The situation in the rural can also make the elderly able to be more active and stimulate themselves by interacting with others, so that they get good



physical and cognitive stimulation, while the elderly who live in cities will tend to live alone and lack physical and cognitive stimulation. The differences in urban and rural situations may affect the decline in physical and psychological (cognitive) function in the elderly in both areas.

The current research addressed the issues with regard to functional status conditions, they are functional status of daily activities (Activity of Daily Living/ADL), executive functions, and protein intake among elderly who live in rural and urban areas. We hypothesized that elderly who reside in rural areas were more active, cognitively intact, and exposed to nutritious diet compared with their counterparts who reside in the city.

## **Literature Review**

### **Activities of Daily Living (ADL)**

Activities of Daily Living (ADL) is an index used to measure a persons's functional capacity (Storeng, Sund & Krokstad, 2018). ADL is divided into 2 (two) types, namely:

- 1) Basic Activity of Daily Living or often called ADL, is a basic skill that must be possessed by someone to care for themselves such as dressing, eating, drinking, toileting, and decorating.
- 2) Instrumental Activity of Daily Living or often called IADL, is a more complex skill, which is related to the use of tools or means of supporting everyday life and to live in a community such as using the telephone, shopping, preparing food, using transportation, and so.

### **Factors attributable to *Activities of Daily Living* (ADL)**

The Decline in the function of basic ADL and the instrumental ADL will increase with age, and the deficit ADL will occur first before there is a deficit in IADL (Milla n-Calenti et al, 2010). The meta-analysis research identified risk factors for functional decline that were reflected in the Activity of Daily Living (ADL), including physical activity, sitting duration, sleep duration, smoking, alcohol consumption, and low social participation (Storeng, Sund, & Krokstad, 2018).

In addition to risk factors, according to Hardywinoto & Setiabudhi (2005), there are other factors that affect the Activity of Daily Living (ADL), including :

- 1) Age and Developmental Status

Age and developmental status shows how a person from infancy to adulthood slowly changes from dependent to independent in doing their daily living activities.

## 2) Physiological Health

Disorders of health such as illness or injury can interfere with the ability of one's daily living activities.

## 3) Cognitive Function

Cognitive function shows the ability in the process of receiving, organizing, and interpreting stimulus to think and solve problems. A disturbance in cognitive function can inhibit someone's independence in doing their daily living activities.

## 4) Psychosocial Function

Psychosocial functions related to job responsibilities, roles in society, and interpersonal communication. The existence of disruption to the function can affect the fulfillment of a person's daily living activities.

### **Executive Functions**

The executive function includes the ability that allows a person to regulate behavior to achieve goals, coordinate behavior, and analyze the success of the strategy to be carried out (Barnich, 2004). Executive functions also include other complex cognitive functions such as solving current problems, changing behavior based on new information, and devising strategies or sorting complex behaviors. In addition, executive function also includes higher cognitive processes such as planning, self-monitoring, changing activities, and behavioral control (Kessel & Hendriks, 2006).

### **Protein Intake in Elderly**

Measurement of nutritional status in the elderly is different from other age groups. Although body mass index (BMI measurement) is the simplest and easiest method, it does not necessarily describe the actual physical condition of the elderly. Accurate measurement of the height of the elderly may be difficult because the elderly cannot stand upright. BMI also cannot properly describe the muscle mass of the elderly body (Mahan & Raymond, 2017). Many studies use simple screening methods such as the Mini Nutritional Assessment or Subjective Global Assessment, which serves to detect malnutrition quickly rather than accurately measure the nutritional status of the elderly. One model for measuring the nutritional status of the elderly (Engelheart & Brummer, 2018) suggested a measurement that includes four domains, namely:

- 1) Physical capacity and function: consisting of muscle strength, activities of daily living (ADL) function, physical activity, body composition, etc.
- 2) Health and somatic disorders: drugs used, physical symptoms, medical diagnosis, inflammation, and others.

- 3) Food and nutrition: includes energy and nutrient intake, eating habits, fluid intake, diet, and others.
- 4) Cognitive, affective, and sensory functions: consist of decreased cognitive function, depression, mood, sense of taste and smell, and others.

## Method

### Participants

The participants of this study were 5 elderly people living in rural areas, namely in the Kopeng (Salatiga), and 12 people representing elderly living in urban areas, namely in Semarang. All participants are elderly who do not suffer from serious illnesses to the potential to interfere with daily functioning, such as dementia, Alzheimer's, and Parkinson's. Ten research assistants from the Faculty of Psychology and Food Technology were involved in the study and specifically trained to administer the series of tests and interviews used.

### Measurements

#### *Activities of Daily Living (ADL)*

##### *Katz Index of Independence in Activities of Daily Living (ADL)*

The Katz ADL Scale is the most frequent instrument for assessing functional status as a measure of the client's ability to carry out daily life activities independently. This scale has 6 (six) domains, namely: bathing, dressing, toilet use, relocating, defecating, and eating. Participants are given a score of 0 (zero) or 1 (one), according to the ability of each domain. A score of 6 (six) indicates full function, 4 (four) indicates moderate disorder, and 2 (two) or less indicates severe functional impairment.

##### *The Lawton Instrumental Activities of Daily Living (IADL) Scale*

The IADL Lawton scale measures skills levels that are more complex than activities of daily life. There are 8 (eight) domains of functions measured by this scale, namely: the ability to use the telephone, shop, food preparation, household, washing, use of modes of transportation, take responsibility for personal treatment, and the ability to handle finances. Historically, women were given scores in all 8 function areas, while men were not assessed in the domain of food preparation, household, washing. However, the current recommendation is to assess all domains for both sexes. Participants are given a score of 0 (zero) or 1 (one),

according to their highest level of function in that category. Scores range from 0 (low or dependent function) to 8 (high or independent function).

### *Executive Functions*

Executive functions will be measured by a battery test, namely *Trail Making Test (A & B)*, *Stroop Test*, *Digit Span*, dan *Five Point Test*.

#### *Trail Making Test*

Trail making tests measure attention speed, sorting, mental flexibility, and visual and movement search functions. There are two parts to this test. In part A, the available numbers must be connected in chronological order. In part B the numbers and letters need to be linked alternately (1-a-2-b-etc). Trail making tests Parts A and B measure the speed of processing information. In addition, part B also measures cognitive flexibility. If the participant score in part B is worse than part A, it can indicate a decrease in cognitive flexibility.

#### *Five Point Test*

This test is designed to find out figural flexibility and persistence. This test consists of 40 five-dot matrices in a piece of paper. Participants are asked to make as many figures as possible by connecting lines in each box. The scoring system is done by calculating a unique figural design that can be made within three minutes, taking into account the percentage of errors.

#### *Stroop Test*

Stroop test is designed to determine various cognitive functions such as the ability to inhibit cognitive impairment, attention, processing speed, cognitive flexibility, and working memory. This test contains three sub-tests that need to be done. The first subtest contains words about the type of random color (blue, green, red, yellow) printed in black ink. The second subtest contains words about the types of colors printed in inappropriate colors, for example yellow words printed in green. Participants were asked to name the ink colors of the printed words as quickly and accurately as possible. There is no time limit in working on this sub-test.

#### *Digit Span (Forward, Backward, dan Sequencing)*

This test is used to measure short-term auditory memory, attention, and anxiety. This test is divided into three parts, namely the forward section, the backward section, and the sequencing section. Each part consists of questions in the form of a series of numbers

consisting of 2 to 9 numbers that are mentioned orally. In the Digit Span Forward section, the tester mentions a row of numbers, and then participants are asked to recite in sequence. In the Digit Span Backward section, tester mentions a row of other numbers, then participants are asked to recount in reverse order. In the Digit Span Sequence section tester mentions another row of numbers and participants are asked to sort the numbers from smallest to largest.

#### *Nutritional Status*

Measurement of nutritional status of the elderly can use the Body Mass Index (BMI) method with the formula (Mahan & Raymond, 2017):

$$BMI = weight (kg) / (height \times height) (m^2)$$

#### *Energy and Protein Intake*

The 24-hour recall method is conducted by interviewing respondents to retrieve data on food intake for three consecutive days (two working days and one day off). This method relies on the respondent's memory of the food consumed the day before. The intake data is then converted to get the average daily energy (kcal) and protein (gram) intake.

#### **Statistics Analysis**

The statistical analysis used is the Mann-Whitney Test Technique to test the differences between variables in the elderly in rurals and cities. In addition to conducting inferential tests to analyze the hypotheses to be proven, researchers also conducted descriptive statistical analyzes of demographic data and research variables to provide an analytical picture of the data revealed in the study.

### **Results**

Due to the Covid-19 Pandemic in Indonesia since March 2020, the research data collection that already conducted in January and February must be stopped. Not all the subjects are completing the entire data. The elderly subjects who participated in this study had completed the entire data collection process were 17 respondents.

There are 6 other elderly respondents who have complete data for measuring nutritional status and protein intake, but they are incomplete data for neuropsychological testing. Thus, we cannot continue the data from the last 6 respondents for analysis.

## Descriptive Analysis

The following is descriptive data on demographic aspects of the research respondents and the mean scores on the measured research variables.

Table 1. Respondent demographic descriptive data

|          |   |
|----------|---|
| Age      | $M = 71$ ( $SD = 7,04$ )<br>60 – 87 years old |
| Sex      | Woman = 15 (88%)<br>Man = 2 (12 %)            |
| Location | Rural = 5 (29 %)<br>City = 12 (71 %)          |

Note:  $M$  (mean);  $SD$  (Standard Deviation)

Table 2. Average Activity in Daily Living (ADL), Instrumental Activity in Daily Living (IADL), Executive Function Tests, Body Mass Index (BMI), nutritional status, protein intake, and Protein Fulfillment Level (PFL) in elderly in rural and urban areas

| Variable                | City Average Score | Urban Average Score |
|-------------------------|--------------------|---------------------|
| ADL                     | 7,54               | 12,50               |
| IADL                    | 7,75               | 12,00               |
| Trail Making Test (A)   | 8,56               | 10,00               |
| Trail Making Test (B)   | 8,46               | 10,30               |
| Stroop Color Test       | 7,96               | 11,50               |
| Five Point Test         | 9,96               | 6,70                |
| Digit Span (Forward)    | 9,63               | 7,50                |
| Digit Span (Backward)   | 8,17               | 11,00               |
| Digit Span (Sequencing) | 9,17               | 8,60                |
| BMI                     | 9,63               | 7,50                |
| Nutrient Status         | 9,42               | 8,00                |
| Protein Intake          | 8,83               | 9,40                |
| PFL                     | 9,25               | 8,40                |

Note:

The Executive Function (FE) is promoted using the Neuropsychological Test Battery, namely Trail Making Test A and B, Stroop Color Test, Digit Span, and Five Point Test.

Number of subjects (N) = 17.

## Inferential Analysis

The statistical test with the non-parametric difference test, Mann-Whitney Test used to analyze the hypotheses in this study revealed the following results:

- 1) There is no difference in executive function among the elderly in cities and rural areas.
- 2) There was no difference in protein intake in the elderly in cities and rurals, with  $Z = -0.211$  ( $p = 0.461, > 0.05$ ).

- 3) There was a significant difference in ADL in the elderly in the city and in the rural, with  $Z = -2.083$  ( $p = 0.037$ ,  $<0.05$ ), with the average ADL score of the elderly in the rural ( $M = 12.50$ ) higher than the ADL of the elderly in the city ( $M = 7.54$ ). (See table 2).

Table 3. *Mann-Whitney difference Test* results of elderly executive function in the rural and in the city

| Executive Function    | Z Score and Significance Level          |
|-----------------------|---|
| TMT A                 | $Z = -0.527$ ( $p = 0.598$ , $> 0.05$ ) |
| TMT B                 | $Z = -0.686$ ( $p = 0.493$ , $> 0.05$ ) |
| Stroop Color Test (3) | $Z = -1.324$ ( $p = 0.185$ , $> 0.05$ ) |
| Five Point Test       | $Z = -1.214$ ( $p = 0.225$ , $> 0.05$ ) |
| Digit Span (F)        | $Z = -0.809$ ( $p = 0.419$ , $> 0.05$ ) |
| Digit Span (B)        | $Z = -1.088$ ( $p = 0.277$ , $> 0.05$ ) |
| Digit Span (S)        | $Z = -0.213$ ( $p = 0.821$ , $> 0.05$ ) |

## Discussion

Susilawati (2019) suggests that rural communities have unique characteristics. The first characteristic is homogeneity or similarity in terms of livelihoods, cultural values, attitudes, and behavior. Rural communities also feel attached to the land of their birth. In addition, relationships between family members in the community are more intimate. More about the family, life in rural areas also emphasizes the involvement of family members in economic fulfillment. If there is a problem, the family is also the final decision maker in solving the problem (Susilawati, 2019).

This is quite different from what observed in the city or urban area. Urban communities are more isolated, they have a personal distance from each other. Isolation can lead someone to feel lonelier than someone who lives in rural environment. Actually, this thing can be good to develop their free ideas and good personal responsibility, but at the same time also makes one have a lack of ties between each other, and can lead a person to feel lonelier. Facing the threat of alienation, there are two choices available for someone to still be able to feel the bond of good relations. The first choice is to withdraw from urban life, and the second choice is to make contact with others. This contact manifested itself in various associations with specific objectives, such as workers' unions, parents' associations, etc. (Pandaleke, 2015).

In this study, there were significant differences in ADL in the elderly in cities and rural, with  $Z = -2.083$  ( $p = 0.037$ ,  $<0.05$ ), with the average ADL score of the elderly in the

rural ( $M = 12.50$ ) higher than the elderly ADL in the city ( $M = 7.50$ ). The elderly who live in cities seem to have a different nuance than the elderly who live in rurals. The situation of the rural community where the research provides the warmth of social interaction so that every person including the elderly who live will not feel alone. This happens in interactions with greetings, sending each other to send food from the harvest or souvenirs, or just visiting neighbors, especially the elderly. This is different from the elderly who live in cities, the majority of which live in nursing homes. The elderly who live in there often feel alone, even though there are many other elderly who live in there too. This happens because they feel far from their families. The elderly who live in their own home also feel far from their families due to the busy schedule of their children.

The second thing that appears in the elderly rural is the satisfaction of living in their own homes. Even though the house is simple, the elderly who live in the rural can accept this condition and feel satisfied to be able to live in there. On the other hand, the elderly who live in nursing homes do not feel satisfied with their residence. Although the rooms and services are far better than their ownhome, they lack a sense of "satisfaction" because they feel they live in a foreign environment that they cannot call "home". Hacıhasanoglu, Yildirim, & Karakurt (2012) revealed that living alone, rarely visited by relatives, and dissatisfaction with the place of residence will have an impact on loneliness. Furthermore, Perisinoto, Cenzer, & Covinsky (2012) revealed that people who experience loneliness will also experience a decrease in ADL scores. Both studies are in line with the results of this study that the ADL scores in the elderly in rural and urban areas are different because the elderly in cities experience loneliness while the elderly in rurals do not experience loneliness.

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## **Work Family Conflict on Female Employee Marketing Bank of State Owned Corporation in Medan-Indonesia**

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### **Abstract**

Almost all banks have married female employees and there are banks where female employees are more than male employees. Family conflicts caused by work tend to be experienced by women. This level of conflict will affect the commitment and performance of the employee. To reduce the chances of a conflict, the elements involved are not only the employees concerned but also the involvement of the organization's environment, especially the company's leadership. Based on previous studies that employee performance is affected by work life conflicts and workload overload in the banking sector.

Key words: Employee Performance, Work Family Conflict and Banking

### **Introduction**

Indonesia is one of the countries with the highest number of banks (115) compared to neighbouring countries, Thailand (30) and Malaysia (19). In contrast, Indonesia's average bank assets are much smaller than Malaysia and Thailand (OJK, 2019). The number of employees at the nine largest banks in Indonesia was found to decrease dramatically from 242,000 people in 2016, reduced to 22,000 more by the end of 2018, and rapid technological change. However, despite many staff reductions, some bankers still stated that efficiency banking is still wrong (Wibowo, 2019).

The form of efficiency which is carried out by banks in almost all regions is by reducing employees. That resulted in the delegation of workload to be more on existing employees. Not only workload, but employees are also required to give more work time to the company. It is not uncommon to find many Bank employees who work outside working hours, and are forced to sacrifice time for family for the demands of the profession.

This condition makes some employees, especially women, face multiple roles, where those roles become incompatible with each other, which eventually leads to conflict. There is debate about male and female conflicts, especially in terms of job performance. The debate about it is still inconclusive. There is no exact data that shows that men perform better than women or vice versa

The only area where significant differences between men and women were found was absenteeism. Women have higher absenteeism rates because women usually have a more significant role than men in caring for and caring for children, frail parents, and sick partners so that women must be absent from work (Greenhaus, and Beutell, 1985).

On the one hand, women are required to be responsible for taking care of and maintaining the right family. On the other hand, as a good employee, they are also required to work by staffing standards by showing excellent work performance. The role is divided into her role as a housewife so that sometimes it can interfere with activities and concentration in her work; for example, companies find it difficult to demand overtime or assign female employees who are married and have children to go out of town.

### **Literature Review**

States that the inability of career women in resolving household conflicts causes them to display negative work attitudes, such as lack of motivation at work and lack of concentration due to family affairs, thus affecting the performance of the organization or the company as a whole. Mothers who work outside the home must wisely manage time. Working to meet family needs is indeed very noble, but it must still be remembered that the mother's main task is to manage the household (Namayandeh, et al 2011).

Given the roles they play, men and women have different views. Gender role theory states that women see their role more in the family as part of their social identity than men (Crouter, 2015). Therefore, when work interferes with family demands, women are more likely to develop negative attitudes towards work than men because work is seen as more a threat to their central social role (Grandey, et al., 2015). Married women generally have work conflicts due to the demands of a dual role both as housewives and as professional workers.

Almost all banks have married female employees, and there are banks where female employees are more than male employees. Family conflicts caused by work tend to be experienced by women. This level of conflict will affect the commitment and performance of the employee. To reduce the chances of a conflict, the elements involved are not only the employees concerned but also the organization's environment, especially its leadership.

Based on previous studies in which Ashfaq et al. (2013) reported that employee performance is affected by work-life conflicts and work overload in the banking sector. The study states that in general, in developing countries, there are two variables (namely conflict between work life and overwork) that are connected with work, which have a significant influence on employee performance (Ashfaq et al., 2013).

Indonesia experiences significant growth in the working-age population, where 30% of the 53 million workforces are women (Ministry of Manpower and Transmigration, 2014). This data reveals at least two sides. First, women show positive economic development; and secondly; currently, women are actively involved in the world of work to pursue personal careers or support family welfare. This situation also shows an increase in the number of working women.

They are independent career women at work and wives/mothers who are actively responsible in their families. Unfortunately, the current workplace phenomenon produces conflicting roles and responsibilities as career women and wives/mothers (Karatepe and Kilic, 2007). There are two types of conflicts: work-family conflict (WFC), and the second is work-family conflict. Both of these conflicts in Indonesia are experiencing an increase, due to significant growth in the working-age population, where 30% of the 53 million workforce are women (Ministry of Manpower and Transmigration, 2014).

Work-family conflicts happen when a person cannot balance and manage his time or energy to fulfill his roles and responsibilities. This phenomenon often influences consideration or hiring decisions, raises doubts about the ability to balance roles, and triggers prejudice on job performance, possible turnover intention, and job satisfaction.

Increased conflicts that occur at work or in the family, logically, will reduce the concentration of the mind, trigger stress, depression, dissatisfaction, and even work that performs poorly, and are likely to encourage change and move to other jobs. This revealed that effectively managing and managing this conflict required the development of essential and strategic human resources.

The condition experienced by marketing employees at state-owned banks related to work-family conflicts is that excess work is also related to long working hours that require high energy levels. This situation is related to work requests that exceed regular duties, but the time allotted is minimal. This is undoubtedly related to requests from companies that demand hard and fast work. Many other things, in the end; it will encourage adverse reactions, such as stress, tardiness, unfocused behaviour, and dissatisfaction (Boyar et al., 2005)

Work-family conflicts experienced by employees in the form of work overload and work time make employees' roles become incompatible in their families and appear guilty (unpleasant feelings). This negative feeling then impacts performance.

Referring to the writings of Sonenntag and Frese, 2001, the authors describe the decline in employee performance caused by conflict by using multi-dimensions in the form of customer orientation, execution-focused, result orientation, and professional mindset. Declining performance, in this case, does not necessarily reduce all dimensions of employee performance. When faced with conflict, the most declining performance is a decrease in an initiative in solving problems, lack of focus on customer needs and mistakes in making resource planning for achieving targets.

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## **Factors Affecting the National Assessment Percentage Rate among Grade 12 Technical, Vocational and Livelihood Education Students in a Sampled Public School in Quezon City**

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### **Abstract**

Competency assessment plays a crucial role in the success of every student. This assessment is focused in improving the quality of Filipino workers by increasing their level of skills and productivity and enhancing their employability within the certifiable skills. With the K to 12 Program in place, Technical Education and Skills Development Authority (TESDA) is gearing up a massive review and updating of its offered courses to boost higher chances of employment after graduation. However, the skills certification in some of the public schools in Quezon City where most of the grade 12 Technical, Vocational and Livelihood (TVL) students under the specialization of Industrial Arts has a decreasing percentage rate in the National Assessment. This study aimed to identify the factors that affect the implementation of National Assessment among grade 12 students in Electrical Installation Maintenance and Shielded Metal Arc Welding. Data were gathered from all the Grade 12 Electrical Installation and Maintenance students in a sampled school in Quezon City using the descriptive method of research. The results revealed that students' skills certification is mostly affected by their economic status that limits the students in providing the welding and electric materials needed for the actual performance. Followed by the inadequate tools and instructional materials. As a course of action, the researcher initiated an agreement for the implementation of the Joint Delivery Voucher Program (JDVP), a partnership with TESDA Agency that allows Training schools in conducting intensive skills training, financial literacy and business management seminars in which students have a chance to undergo free TESDA Training and Certification Program which opens job opportunities after graduation.

**Keywords:** National Assessment, Competency, Percentage Rate, Certification Program



## Introduction

Competency assessment plays a crucial role in the success of each and every students under the K12 curriculum. Schools administrators, stakeholders and teachers are working hand in hand for the implementation and assessment certification program. The skills certification program was and implemented with the main development objective of improving the quality of Filipino workers by way of increasing their level of skills and enhancing their employability within the certifiable skills. In the same way that the setting of standards for consumer product invariably leads to a better product, the skills certification program aims at improving the level of skills and hence increasing the productivity of the worker. With the K to 12 program soon in place, the Technical Education and Skills Development Authority (TESDA) is gearing up a massive review and updating of its courses to be offered to the students to boost their chances of employment after graduation.

TESDA Director General Joel Villanueva said that with the implementation of the K to 12 program, the country will have at least 1.2 million graduates every year. Speaking at the 4th National COCOPEA Congress at the University of Sto. Tomas, Villanueva made a push anew for the new education curriculum, stressing the vital role of K to 12 in raising the quality of education to make the country catch up with the rest of the world. “The introduction of the K to 12 is a major educational reform that impacts not only on basic education but also on technical education and skills development (TESDA) and higher education,” he said. We recognize that TESDA has an important role to play in the K to 12 reform initiative and under the leadership of Department of Education (DepEd), we affirm our commitment to make it work and succeed,” Villanueva added. Villanueva said the K to 12 program would harmonize the policies and programs of TESDA with those of DepEd and the Commission on Higher Education (CHED), put in place a standard Philippine Qualifications Framework, mainstream the qualifications offered by the agency and prompt it to further improve its learning infrastructure in terms of curriculum, trainers and other processes. The assessment and certification of students, he said, will be part of the K to 12 curriculum. Students, who will opt to engage in technical-vocational studies will undergo assessment and after passing, they will be issued certification either a National Certificate I (NCI) or a National Certificate II (NCII). “NC I & NC II TESDA qualifications will be mainstreamed in the specialization phase which falls during Grade 9-12. Thus, it becomes imperative for TESDA to move up and focus towards the development and implementation of higher level qualifications,” Villanueva said.



The K to 12 basic education reform plan, which is a flagship education program of the Aquino administration, will add two years of senior high school to the current 10-year. The two additional years in senior high school are aimed to serve as a specialization period for high school students, whether in vocational skills, music, the arts or sports. High school graduates have the option to pursue jobs with a basic education diploma. Villanueva said the program will make Philippine education at par with the rest of the world, with 12 years of basic schooling already a global standard. He said that only three countries – Philippines, Angola and Djibouti – have a 10-year basic schooling cycle. The TESDA chief said the K to 12 will provide the impetus for the harmonization of the education policies and programs among TESDA, DepEd, and CHED. “The program would also require TESDA to undertake a massive technical education and skills development infrastructure build-up in the areas of trainers/assessors development; learning materials development; IT-linked programs, systems and processes to support program registration and assessment and certification,” Villanueva said. In the BPO sector alone, he reported that TESDA has allocated P50 million for the training of trainers to increase its pool of qualified and competent trainers. TESDA will also assist the DepEd in “capacitating its cadre of trainers” who will handle the agency’s component of the K to 12 curriculum.

Villanueva said they would also maximize existing resources and tap the 282 vocationalized high schools under DepEd which are in various levels of development. TESDA is also pushing for the review of the Ladderized Education Program in Congress. Standardization and certification of skills is also expected to result in improved industrial relations. The skills certification as mechanism for improving productivity gives a competitive advantage to the firm fulfilling the skills training and documentation requirements under the international standards for quality system (i.e ISO 9000).

Skills certification is a process of assessing/evaluating the country’s skilled workers if they have necessary competence to perform the task to the required standard as described in the units of competency and expected in the workplace. It is important to invest in yourself through self-improvement. Gaining skills from finishing a TESDA course will help you be better in your chosen field or may potentially make you earn more money. TESDA helps their students land jobs upon graduation. According to a report in their official website, 7 out of 10 tech-voc or technical-vocational graduates get jobs. And with more than 200 courses to choose from, the opportunities for you will be endless. TESDA helps their students land jobs upon graduation. According to a report in their official website, 7 out of 10 tech-voc or technical-vocational graduates get jobs. And with more than 200 courses to choose from, the

opportunities for you will be endless! It's also important to note that TESDA helps you avoid a career mismatch. If you take courses specific to what you want like baking or cooking, you will be assured that you'll be a baker or a cook in the future.

Financial problems has caused a lot of effect on the educational sectors, the increase exorbitant cost formal education constitute the major excuse most parents or guardians gives for not educating or withdrawing their children from school to learn a trade, they do not bother to put or contribute their money in the education of their children. Some of the students financial reasons could not pay attention in the class, rather they would be thinking of how practical materials, handouts and assessment fee. (Jariah Masud 2004 )

## II. Literature Review

The Department of Education (DepEd) and Technical Education and Skills Development Authority (TESDA) on Tuesday signed a Memorandum of Understanding (MOU) establishing a Joint Working Group (JWG) to harmonize technical-vocational-livelihood (TVL) education and skills training in the Philippine basic education system.

Education Secretary Leonor Magtolis Briones recognized the importance of working in synergy with TESDA. "The President himself, during the last Cabinet meeting, recognized the importance and the role of TESDA, especially in our efforts to provide gainful employment for our young people, those who may not necessarily proceed to college or university education," Briones stated. "This signing of the MOU merely formalizes what we have been doing together." Meanwhile, TESDA Secretary Isidro Lapeña expressed certainty that the partnership with the Department will be very productive: "We look forward to working with DepEd in building the TVL track in Senior High School (SHS) from this year onward.

### Significant of the study

The findings of the study were considered predominantly beneficial to the following users:

**Students.** This study will be useful and helpful for the benefits of the students in taking their national assessment without considering the financial matters and as well this may enhance their learning the skills and the pedagogies of principles of the said courses.

**Teachers.** This study can provide new ideas and interest to pursue the students to take the national assessment.

**Parents.** This study will give ideas to the parents to guide their children in acquiring learning and skill to the students.

**School Administrators.** This study will help the school administrator to link with other local government agencies that would be helpful for the partnership program intended for students.

**Future researcher.** This is also expected to serve as a source of useful information in the conduct of related studies in the new curriculum of senior high school and/ or other K to 12 program.

### **Scope and Limitation of the Study**

This study aimed to determined Factors affecting the National Assessment percentage rate amongGrade 12 Technical, Vocational And Livelihood Education students in a sampled Public School In Quezon City at Judge Feliciano Belmonte Sr. High School, 2<sup>nd</sup> semester for the school year 2017 – 2018.

This study is delimited to grade 12 EIM and grade 12 SMAW students under industrial arts area 2<sup>nd</sup> Semester for the school year 2017-2018. EIM and SMAW are the only course offered under TVL-Industrial Arts at Judge Feliciano Belmonte Sr High School. The instrument to be used for this research is the questionnaires that has (10) questions that determines the Factors affecting the National Assessment percentage rate amongGrade 12 Technical, Vocational And Livelihood Education students in a sampled Public School In Quezon City.

### **Statement of the Problem**

This study aimed to determine Factors affecting the National Assessment percentage rate amongGrade 12 Technical, Vocational And Livelihood Education students in a sampled Public School In Quezon City. It sought to answer the following;

1. What is the percentage passing rate of Electrical Installation and Maintenance (EIM) and Shielded Metal Arc Welding (SMAW) students in National Assessment for the School year 2017-2018?
2. What are the factors affecting the students to take their National Assessment?
  - 2.1 Academic standing;
  - 2.2 Financial problem; and
  - 2.3 Lack of tools and equipment?

3. How the result may be utilized to design a partnership program to LGU's in providing scholarship for the said courses.

### **Method of Research**

This study utilized Descriptive method of research. According to Adi Bhat (2018) the descriptive method of research is a research method that describes the characteristics of the population or phenomenon that is being studied. This methodology focuses more on the “what” of the research subject rather than the “why” of the research subject.

Descriptive research is a study of status and is widely used in education, nutrition, epidemiology and the behavioral sciences. Most of the descriptive research is the survey, which includes questionnaires, personal interviews and phone surveys and normative surveys. (Eunsook T. Koh, Willis L. Owens 2008)

Three main purposes of research are to describe, explain, and validate findings. Description emerges following creative exploration, and serves to organize the findings in order to fit them with explanations, and then test or validate those explanations (Krathwohl, 1993). Many research studies call for the description of natural or man-made phenomena such as their form, structure, activity, change over time, relation to other phenomena, and so on. The description often illuminates knowledge that we might not otherwise notice or even encounter. Several important scientific discoveries as well as anthropological information about events outside of our common experiences have resulted from making such descriptions. For example, astronomers use their telescopes to develop descriptions of different parts of the universe, anthropologists describe life events of socially atypical situations or cultures uniquely different from our own, and educational researchers describe activities within classrooms concerning the implementation of technology. This process sometimes results in the discovery of stars and stellar events, new knowledge about value systems or practices of other cultures, or even the reality of classroom life as new technologies are implemented within schools.

### **Data Gathering Instruments**

The instruments employed in this research was content validated by the coordinator of research in senior high school department. The Questionnaire checklist are consist of 11 questions with 4 scales such as (4) Strongly agree, (3) Agree, (2) Disagree and (1) Strongly

disagree. The instrument was administered to 20 respondents from EIM (Electrical Installation and Maintenance) and SMAW. (Shielded metal arc welding) students under Technical and Vocational courses and 20 teachers in Senior High School. The questions will be in a form of a survey and evaluated by the master teacher at Judge Feliciano Belmonte Sr. High School. This research will promote subjective tests are evaluated based on the judgment or opinion of the examiner subjective tests are more challenging and expensive to prepare, administer and evaluate correctly. The data collection gathered in the questionnaire will measures the factors affecting the implementation of National Assessment among Grade 12 students under Electrical Installation and Maintenance and Shielded metal arc welding student in previous academic year.

The mean scores of the respondents have been interpreted by the following:

| Scale       | Verbal Interpretation |
|-------------|-----------------------|
| 3.50-4.00   | strongly agree        |
| 2.50-3.49   | agree                 |
| 1.50-2.49   | disagree              |
| 1.00 - 1.49 | strongly disagree     |

### Research Procedures

The school administration of the instruments commenced and was made possible after agreement and permission between the principal of Judge Feliciano Belmonte Sr High School and the researcher for the agreement to conduct a study namely the administration of survey questions to the selected or clustered students based on their specialization. The implementation of the research will start on Second semester 3rd grading and possible with the presence of the researcher and subject teacher if there is any conflict in the schedules. After data collection the researcher will do a series of interviews with the respondent about their opinion or personal judgment. The researcher may also use to interview the teacher regarding the performance of each students in the class as well as the common problems with regards to National Assessment performance in their handled courses. The administration of questionnaires will be given at least 15-20 minutes during break time or possible during the class of the researcher since the said sections was her handled in previous academic year.

### Results and findings

This chapter shows the presentation and interpretation of the gathered data

Table 1

**Percentage of National Assessment Passers under TVL-Industrial Arts**

| <b>Course</b>  | <b>Section</b> | <b>Enrolled</b> | <b>NC II Passers</b> | <b>Percentage</b> |
|--|----------------|-----------------|----------------------|-------------------|
| (SMAW)<br>Shieled metal arc<br>welding                 | Aquino         | 59              | 14                   | 23.73 %           |
| (EIM)<br>Electrical<br>Installation and<br>Maintenance | Osmeña         | 49              | 10                   | 20.40 %           |

Table 1 presents the percentage distribution of National Assessment passers among Grade 12 EIM and SMAW wherein, out of 59 enrolled in section Aquino they were only 14 students who passed the National assessment with the percentage or 23.73% while out of 49 enrolled in Osmeña 10 students were National Assessment passers with the percentage of 20.40%. This means that majority of the Industrial Arts students are not yet NC (National Certificate) holder for the 2<sup>nd</sup> Semester school year 2017-2018.

The study present that out of 59 students enrolled in SMAW only 14 students passed the national assessment with the percentage of 23.73% likewise out of 49 students enrolled in EIM only 10 students passed the national assessment with the percentage of 20.40%. It can be infer that out of 99 students enrolled in industrial arts only 24 students has passed the national assessment. It is very evident that the said courses has low percentage due to a factors that hinder them to pursue the assessment.

Table 2

**Response of Grade 12 EIM Students on the Implementation of National Assessment**

| <b>Factors</b>   | <b>Strongly Agree<br/>4</b> | <b>Agree<br/>3</b> | <b>Disagree<br/>2</b> | <b>Strongly Disagree<br/>1</b> | <b>WM</b> | <b>V.I</b>        |
|--|-----------------------------|--------------------|-----------------------|--------------------------------|-----------|-------------------|
| 1.More demanding in terms of consumable supplies                         | 9                           | 7                  | 0                     | 0                              | 2.25      | Agree             |
| 2.Needs tools and equipment  | 0                           | 0                  | 10                    | 6                              | 1.34      | Strongly disagree |
| 3.Require Financial capability   | 9                           | 7                  | 0                     | 0                              | 2.25      | Agree             |
| 4.Difficulty in academic subjects  | 3                           | 7                  | 5                     | 2                              | 1.83      | Disagree          |
| 5.I need to buy electric supplies or welding supplies during class hours | 10                          | 6                  | 3                     | 1                              | 2.50      | Agree             |
| 6.Inadequate instructional materials                                     | 5                           | 9                  | 1                     | 0                              | 1.38      | Strongly disagree |
| 7.Inadequate facilities  | 8                           | 8                  | 0                     | 0                              | 2.0       | Disagree          |
| 8.Lack of familiarization with the course taken                          | 3                           | 8                  | 5                     | 0                              | 1.38      | Strongly disagree |
| 9.I had problems in providing the needed requirements for the assessment | 9                           | 7                  | 0                     | 0                              | 2.25      | Agree             |
| 10.I had a difficulty in providing the assessment fee                    | 10                          | 5                  | 1                     | 0                              | 2.63      | Agree             |

It can be deduced from the above table, the weighted mean and verbal interpretation towards the response of Grade 12 EIM students in the implementation of national assessment under TVL-Industrial arts. It shows that the specialization/ course is more demanding in terms of consumable supplies, agreed that it requires financial capability, for sustain the supplies needed for their course or specialization, they also have a problems in providing the requirements needed for the assessment likewise in providing the assessment for the said skills certification. In addition, the students' needs to buy tools and equipment but they don't have enough money to finance their needs.

Most of the EIM students have agreed that their specialized course is more demanding in terms of consumable since EIM subject needs materials in order for them to perform different task. On the other hand, the response of SMAW with regards to factors that hinder them to take the national assessment most of the students agreed that their specialized course needs financial capability since it is very obvious that SMAW subject is more on practical task that require financial capability to buy the needed materials in their subject. This course needs to be more flexible and resourceful since the materials needed are very expensive.

Table 3

**Response of Grade 12 SMAW Students on the Implementation of National Assessment**

| <b>Factors</b>                                   | <b>Strongly Agree<br/>4</b> | <b>Agree<br/>3</b> | <b>Disagree<br/>2</b> | <b>Strongly Disagree<br/>1</b> | <b>WM</b> | <b>V.I</b>        |
|--|-----------------------------|--------------------|-----------------------|--------------------------------|-----------|-------------------|
| 1.More demanding in terms of consumable supplies | 8                           | 6                  | 0                     | 0                              | 2.00      | Agree             |
| 2.Needs tools and equipment                      | 0                           | 4                  | 9                     | 3                              | 1.17      | Disagree          |
| 3.Require Financial capability                   | 9                           | 7                  | 0                     | 0                              | 2.50      | Agree             |
| 4.Difficulty in academic subjects                | 0                           | 2                  | 8                     | 6                              | 1.09      | Strongly disagree |



|  |    |   |    |   |      |                   |
|--|----|---|----|---|------|-------------------|
| 5.I need to buy electric supplies or welding supplies during class hours | 10 | 4 | 0  | 0 | 2.50 | Agree             |
| 6.Inadequate instructional materials                                     | 0  | 3 | 10 | 1 | 1.27 | Strongly disagree |
| 7.Inadequate facilities  | 0  | 0 | 4  | 8 | 0.63 | Strongly disagree |
| 8.Lack of familiarization with the course taken                          | 0  | 1 | 10 | 3 | 1.30 | Strongly disagree |
| 9.I had problems in providing the needed requirements for the assessment | 10 | 4 | 0  | 0 | 2.50 | Agree             |
| 10.I had a difficulty in providing the assessment fee                    | 10 | 4 | 0  | 0 | 2.50 | Agree             |

Table 3 shows the response of the SMAW students on the implementation of National Assessment. Out of 14 students agreed that the course requires financial capability to buy supplies or materials for welding and also had a difficulty in providing the assessment fee. This means that all students enrolled in industrial arts are more in need with regards to the financial capability.

With this study shows the fact that the schools and other agency should help hand in hand to provide skills development for the students training and assessment needs.

### Conclusion

1. This study present out 99 students in EIM and SMAW 24 students have passed the National Assessment for the 2<sup>nd</sup> Semester school year 2017-2018.
2. The factors affecting the implementation of national assessment is the financial problems of the students.

3. This study shows the significance of developing a partnership program for the students who are in need with financial assistance.

Based on the findings derived, we therefore, conclude that the financial capability of students hinder them to take the national assessment since the specialized course demands financial capability not because the teacher or the school requires them but due to the scarcity of consumable materials for the said courses. It also evident that most of the Industrial arts subject has a lack of opportunity to take the national assessment due to the fees upon registering the assessment therefore the passing rate of the National Assessment is affected.

### **Recommendation**

In view of the findings of the study, the researcher proposed the following recommendation:

1. The students should undergo to an intensive skills training, financial literacy and business management seminars, they can create a crafts and arts to sell in the school or to a school community livelihood projects with this the students can earn money to sustain their national assessment.
2. The teacher should conduct an interview to the students and develop a project or action like income generating project for the students and motivates the students in taking the national assessment.
3. The parents should be inform about the importance of the national assessment to the students and to their future, the parents should be given a financial literacy seminar so that they can properly allocate their needs and wants.
4. The school administrator should make a memorandum of understand to the partnership company and discuss the needs of students especially in EIM and SMAW and the principal should focus on the courses or specialization who are in need financial assistant, the principal can approved the students to make their income generating project.
5. The future researcher may conduct further study or research using other variable.

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