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ANALYSIS OF RISK FACTORS AND NON-COMMUNICABLE DISEASES (NCDS) AMONG ADOLESCENTS

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ABSTRACT

Objective: To determine an overview of risk factors and noncommunicable diseases in adolescents (16-25 years).

Methods: Design of observational analysis on 2,338 adolescents in Polongbangkeng Utara District, Takalar Regency using univariate analysis. The data in this study used secondary data. This data is the result of data collection conducted by Field Learning Experience students, Faculty of Public Health, Hasanuddin University. The sampling technique uses consecutive sampling.

Results: Out of 2,338 adolescents included in the study, 52.35% were females. As many as ±21% of adolescents had suffered from non-communicable diseases and they already have risky behaviors, such as smoking, alcohol consumption and unhealthy consumption patterns. 32.50% of male respondents had >3 risk factors for NCDs while 50.08% for females had 2 risk factors for NCDs.

Conclusions: Largely adolescents studied had preventable risk factors for NCDs. These results guarantee comprehensive and integrated interventions to avoid lifestyle risk factors, and parents are front-line stakeholders.

KEYWORDS: Adolescents; NCDs; Risk Factors.

I. INTRODUCTION

According to the World Health Organization (WHO), Noncommunicable Diseases (NCDs) are the leading cause of death globally. In 2016, showed that out of 57 million deaths in the world, 41 million (71%) were caused by NCDs. The major NCDs responsible for these deaths include cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes mellitus.[1]

In Indonesia, NCDs estimated to account for 73% of all deaths.[1]Riskesdas 2018 results also showed the prevalence of NCDs has increased when compared to Riskesdas 2013, including cancer (1.4‰ to 1.8‰), stroke (7‰ to 10.9‰), chronic kidney disease (2‰ to 3.8‰). Based on tests of blood sugar, diabetes mellitus increased from 6.9% to 8.5%; and blood pressure measurement results, hypertension increased from 25.8% to 34.1%. The prevalence of some NCDs at the age of 15-24 years are diabetes mellitus (0.05%), heart disease (0.7%), cancer (0.47‰), asthma (2.2%), stroke (0.6%), rheumatic disease (1.23%) and injury (12.2%). As for the prevalence of hypertension at the age of 18-24 years were 13.22%. This shows that a small proportion of adolescent in Indonesia already experiencing NCDs.[2,3]

Non-communicable diseases are caused by risk factors that can be modified and cannot be modified. Behavioral risk factors can generally be found in adolescents such as unhealthy diets, lack of physical activity, tobacco use, and excessive alcohol consumption.[4-6] These risk factors negatively impact adolescent health, such as unhealthy diets, consumption fruits and vegetables are low, sugar high food intake can cause type 2 diabetes mellitus. In

addition, excessive alcohol use can cause changes in the central nervous system which can have an effect on depression in adolescents. Smoking behavior that will contribute to the risk of respiratory disease.[7-9]

Adolescents are often regarded as a group with excellent health. However, risk behaviors that begin in adolescence can determine the patterns of health status formation in adulthood.[10] Therefore, adolescents are an important population group in response to NCDs. This is due to the many risk factors for NCDs that occur in adolescence, basically these risk factors can be modified.[11]

Therefore, NCDs prevention strategies that are focused on adolescents are significant. However, currently the challenges faced in the form of data availability related to risk factors and adolescent health status are yet limited. In addition, there is no baseline data center available for adolescent health problems, especially NCDs. This data limitation can cause gaps in decision making, formulating policy strategies and management practices. This study was aimed to determine an overview of risk factors and noncommunicable diseases in adolescents (16-25 years) in Polongbangkeng Utara District, Takalar Regency.

II. METHODS

This research is a quantitative study with a descriptive study approach. The samples in this study were adolescents aged 16-25 years as many as 2,338 people. The data in this study used secondary data. This data is the result of data collection conducted by Field Learning Experience students, Faculty of Public Health, HasanuddinUniversity. The instrument used was a questionnaire and informed consent to obtain the respondent's agreement. The sampling technique uses consecutive sampling. The data were analyzed univariately which can provide an overview of non-communicable diseases in adolescents and behavioral risk factors that can influence them.

III. RESULT

This research was conducted by interviewing adolescents aged 16-25 years. The majority of respondents were female (52.35%). As many as 64.93% of respondents were single and 74.21% were not working or as students (Table 1). The main risk factors that are focussed were smoking behavior, alcohol consumption and unhealthy consumption patterns. As many as 22.58% of adolescents with smoking behavior every day, the age of starting smoking the most, which is 15-19 years as much as 73.92%. Most adolescents (83.27%) have smoking habits at home. Information on alcohol consumption was obtained by asking about the history of alcohol consumption 1 month before the survey. Based on the results of interviews shows that as many as 5.65% of respondents have consumed alcoholic drinks in the last 1 month. Risk factors for smoking and alcohol consumption are mostly for male respondents (Table 2).

A risky diet can be seen from the low consumption of fruits and vegetables. Information related to fruit and vegetable consumption was obtained by asking the respondent's consumption in the last week before the survey. The analysis showed that only 4.15% of respondents consumed fruit every day. As for the consumption of vegetables showed that the majority of respondents had fulfilled enough vegetable consumption every day (45.89%). Data showed that the riskiest foods consumed every day by respondents, seasonings (36.44%) (Table 2).

In this study an analysis of joint risk factors was also carried out. Based on the data in Table 2 shows that 48.16% of respondents have 2 risk factors for NCDs. As for the sex, it shows that 32.50% of male respondents have > 3 risk factors for NCD while for females as much as 50.08% have 2 risk factors for NCDs.

Information on non-communicable diseases is obtained through questions that have been diagnosed by a doctor or experienced symptoms. Based on the distribution of non-communicable diseases suffered by adolescents (Table 3) showed that in the past year 6.54% of respondents had experienced injuries, with 53.59% of the injuries resulting from traffic accidents. Based on the doctor's diagnosis, 3.21% suffer from hypertension, rheumatic disease (2.44%), asthma (2.31%), heart disease (0.38%), diabetes mellitus (0.26%), and stroke (0.09%). Based on sex, it was shown that the problem of non-communicable diseases more experienced by females, asthma (3.19%), heart (0.65%), hypertension (3.76%) and rheumatic disease (3.19%).

Table 1 Characteristics of respondents

Characteristics	n=2,338	%
Gender		
Male	1,114	47.65

Female	1,224	52.35
Marital status		
Single	1,518	64.93
Married	800	34.22
Divorced/ Widow/ Widower	20	0.85
Profession		
Not working / Student	1,735	74.21
Housewife	6	0.26
Civil servant	15	0.64
Private employees	79	3.38
Entrepreneur	74	3.17
Farmers/ Worker at Farm	193	8.25
Laborer/ Driver/ Helper	139	5.95
Others	97	4.14

Source: Secondary Data from Field Learning Experiencestudents, Faculty of Public Health, 2019

Table 2 Smoking behavior, alcohol consumption and consumption patterns in Adolescents

Variabel	All (n=2,338) n(%)	Male (n=1,114) n(%)	Female (n=1,224) n(%)
Smoking			
Yes, smoking every day during the survey	528 (22.58)	525 (47.13)	3 (0.25)
Yes, I have, I stopped smoking when I did the survey	28 (1.20)	27 (2.42)	1 (0.08)
Age start to smoking (years):			
10-14	91 (16.37)	89 (7.99)	2 (0.16)
15-19	422 (73.92)	421 (37.79)	1 (0.08)
20-25	54 (9.71)	53 (4.76)	1 (0.08)
Smoking behavior inside the house	463 (83.27)	463 (41.56)	0
Alcohol Intake	132 (5.65)	130 (11.67)	2 (0.16)
Consumption Pattern			
Daily fruits intake	97 (4.15)	41 (3.68)	56 (4.58)
Daily vegetable intake	1,073 (45.89)	471 (42.28)	602 (49.18)
Daily sweet food intake	506 (21.64)	251 (22.53)	255 (20.83)
Daily salty food intake	387 (16.55)	174 (15.62)	213 (17.40)
Daily fatty food intake	359 (15.36)	178 (15.98)	181 (14.79)
Daily seasoning intake	852 (36.44)	406 (36.45)	446 (36.44)
Daily instant food intake	296 (12.66)	150 (13.46)	146 (11.93)
Daily soft drink intake	58 (2.48)	28 (2.51)	30 (2.45)
Number of simultaneous risk behaviors for NCDs*			
≤1	846 (36.18)	239 (21.45)	607 (49.59)
2	1126 (48.16)	513 (46.05)	613 (50.08)
≥3	366 (15.65)	362 (32.50)	4 (0.03)

*Risk factors: smoking, alcohol intake, daily fruits and vegetable intake

Source:*Secondary Data from Field Learning Experiencestudents, Faculty of Public Health, 2019*

Table 3 Prevalence of non-communicable diseases suffered by adolescents.

Non-communicable Diseases (NCDs)	All n=2,338 (%)	Male n=1,114 (%)	Female n=1,224 (%)
Asthma	54 (2.31)	15 (1.35)	39 (3.19)
Cancer	0	0	0
Diabetes mellitus	6 (0.26)	3 (0.27)	3 (0.25)
Heart	9 (0.38)	1 (0.09)	8 (0.65)

Hypertension	75 (3.21)	29 (2.60)	46 (3.76)
Stroke	2 (0.09)	1 (0.09)	1 (0.08)
Rheumatic disease	57 (2.44)	18 (1.62)	39 (3.19)
Injury**	153 (6.54)	98 (8.80)	55 (4.49)

**Injury in the past 1 year

Source: *Secondary Data from Field Learning Experiencestudents, Faculty of Public Health, 2019*

IV. DISCUSSION

The results of the research that have been carried out illustrate that a small fraction of adolescents (16-25 years) have lived with NCDs such as asthma, diabetes mellitus, heart disease, hypertension, stroke, rheumatic disease and injuries. In addition, when observed from risk factors, it shows that some adolescents have at least one or more NCDs risk factors, such as smoking, alcohol consumption and unhealthy consumption patterns.

Risk behaviors that are currently being held during adolescence are likely to continue into adulthood. Epidemiological studies showed the relationship between risk factors during adolescence with the risk of future NCDs.[12–14] Therefore, it is important to monitor risk factors for NCDs in adolescents, including co-occurrence in populations because risk factors can interact with one each other, resulting in a greater risk.[15] According to WHO, there are four major global risk factors for NCDs, smoking, unhealthy consumption patterns, lack of exercise and alcohol consumption.[16]

Tobacco use at a younger age increases the length of tobacco exposure leading to a greater risk of experiencing NCDs at a relatively early age, ie when they are still at a productive age.[17] The results of the study show that smoking behavior in adolescent boys is greater than in girl adolescent. This is related to the culture of the people in South Sulawesi, which considers that smoking behavior is not something that is commonly done by women.

Similar research conducted in Iran showed that the current smoking prevalence was 12.5% (6.1 million; 23.4% male and 1.4% female). It can be seen that women's smoking behavior is smaller than men because of the Iranian culture that smoking behavior is a stigma for women.[18] Thus, culture can be an enabling factor for the low reporting of smoking behavior in women because they feel afraid and ashamed to express smoking behavior among them.

Alcohol consumption is one of the factors that contribute to the incidence of NCDs. Some of the outcomes result from alcohol consumption, were cancer, cardiovascular disease, and liver disease.[19] In addition, adolescents with alcohol consumption who are accompanied by smoking behavior are often associated with other risk behaviors, including drug use, unprotected sexual relations, aggressive behavior and depression.[20]

The results of a study conducted by Shayo (2019), showed that an unhealthy diet is the highest proportion of all risk factors for NCDs and followed by physical inactivity. Adolescents aged 12-15 years have a far higher proportion of unhealthy diets, tobacco use, excessive alcohol consumption compared to adolescents aged >12 years.[21] The most common combination of risk factors is low consumption of fruits and vegetables with physical activity which is not active.[22]

Research that has been done shows that only 4.15% of respondents consume fruit every day and vegetable consumption every day 45.89%. The results are similar to the research conducted by Puwar (2018), showed that only 11.6% of respondents consumed fruit every day. Regarding vegetable consumption, 70% of respondents consume vegetables every day. For other risky consumption patterns, it is shown that more than 40% of respondents occasionally consume fast food, non-carbonated drinks (>60%).[23]

This shows that there has been a shift in the diet of Indonesian people from the consumption of vegetables and fruit replaced with the import menu "fast food" and soft drinks. The family plays an important role in shaping the eating patterns of children and adolescents to prevent the occurrence of an obesity epidemic that can trigger various metabolic disorders. Therefore, a pattern of life with sufficient physical activity accompanied by a healthy diet should start as soon as possible.[10]

At present, priority interventions target general risk factors in adolescents. This happens because the data shows that 70% of premature deaths in adults are mostly caused by behaviors that begin in adolescence, such as smoking, obesity, low-level physical activity and alcohol consumption.[24,25] Therefore, it important for health care

behavior for adolescents in order to achieve good health status in the future. Conducting healthy behavior will greatly help prevent the emergence of early NCDs, as of to save the country's health budget.

V. CONCLUSION

The results found in the study showed that as many as ±13% of adolescents in Polongbangkeng Utara District had suffered from non-communicable diseases and they had risky behaviors that could adversely affect health in the future. In addition, the high prevalence of simultaneous risk factors in adolescents. These results guarantee comprehensive and integrated interventions to prevent lifestyle risk factors, and parents are front-line stakeholders.

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