Relationship between Knowledge, Attitude, and Behavior on Head and Neck Cancer among Health Workers and Community in Bandung, Indonesia

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Abstract

Head and neck cancer is the sixth most common cancer in the world with increasing incidence and mortality in the last three decades. The hidden location of head and neck tumors and their atypical symptoms cause difficulties in diagnosis. Most patients are first diagnosed at an advanced stage. Several factors allegedly related to the incidence of head and neck cancer are knowledge and attitude of the public on early detection of cancer. This study aimed to determine the relationship between knowledge, attitude, and behavior of health workers and community towards head and neck cancer in Bandung, Indonesia. This was a cross-sectional analytical descriptive study using chi-square test as the statistical test. Subjects for this study were sampled using the proportional cluster random sampling on health care workers and community in 30 community health centers in Bandung City during the period of July–August 2019. Data were obtained through a questionnaire distributed to the subjects. This questionnaire included items on knowledge, attitude, and behavior towards head and neck cancer. Of the 650 respondents, most were 40–49 years old (25%), female (62.2%), patients (74%), high school (49%). The levels of knowledge and attitude have a significant relationship with the behavior of early detection of head and neck cancer (p=0.015). The awareness and knowledge of health workers and community on early detection of head and neck cancer are high in Bandung, Indonesia.

Keywords: Attitude, behavior, early detection, head and neck cancer, knowledge

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Introduction

Head and neck cancer (HNC) is the sixth most common cancer worldwide.\(^1,2\) In the United States, about 21,000 new cases of oral cancer are diagnosed each year and it has been estimated that more than 650,000 new cases of head and neck cancer are reported each year worldwide with a mortality rate of 350,000 cases per year, two-thirds of them in developed countries.\(^3,4\) In India, on an average 25-30% of all cancer cases affect the head and neck. Due to the increasing prevalence of cancer in South East Asia, it has been predicted that the death rate will also increase by 75% in 2020 as compared to 2000. India is one among these countries that runs a major risk of producing this cancer burden to South East Asia.\(^5,6\) It is not unexpected that HNC is the most common cancer affecting Indonesian males, accounting for 8.7% of all new cancer cases each year and with over 30% of the total Indonesian population estimated to be at risk for HNC.\(^7\) Cases of head and neck cancer in the Department of ORL-HNS Dr. Hasan Sadikin Hospital were 2952 patient from 2013–2018, the highest was nasopharyngeal carcinoma, and more common in men than in women.\(^8\)

Head and neck cancer develops as the result of interactions between environmental factors and genetic inheritance, and is therefore multifactorial. This tumor type occurs mainly in male individuals, and its occurrence increases with age. Over the last decade, there has been a significant increase in this cancer among younger individuals, possibly due to increased numbers of infections by the human papillomavirus (HPV).\(^9,10\)

Delay in diagnosis and treatment of cancer is a major cause of death in cancer patients. Most patients are first diagnosed at an advanced stage and show difficulty in obtaining an early diagnosis. When HNC are diagnosed at a later stage survival rate is poor. The high rate of disease morbidity is also indirectly related to community behavior, such as knowledge with attitudes and actions that are not in accordance with the knowledge of the community itself. Therefore, knowledge of health and the behavior of seeking appropriate public health services is very important to decrease mortality due to head and neck cancers.\(^11\)

Several studies have been conducted in America gauge the public’s awareness and knowledge of HNC. The study showed that there is a gap in the knowledge of American Indians about the risk factors and symptoms of HNC.\(^12\) Bukhary et al\(^13\) found Saudi Arabian people to be poorly informed about HNC. Lack of public awareness is considered a potential barrier to early detection of HNC. Bamhisoun et al,\(^14\) reported that lack of knowledge and awareness in several aspects of the HNC area among undergraduate dental students at King Abdulaziz University Faculty of Dentistry. There is limited documentation on knowledge of HNC in low and middle income countries to date, especially among high risk populations.\(^15\) Earlier studies in Indonesia focused primarily on two subtypes of HNC and assessed awareness among the general and elderly populations and among medical practitioners.\(^16,17\)

This study aims to determine the relationship level of knowledge, attitude, and behavior of health workers and society towards head and neck cancer in Bandung City, Indonesia.

Methods

Participants in this study were patients, family of the patients and health workers in health center who met the inclusion and exclusion criteria. The inclusion criteria included participants aged ≥15 years (the eligible participants i.e. adolescent and young adults), and willing to become participants. The exclusion criteria included those experiencing mental health problems. Participants must first read the informed consent and understanding the objectives and benefits of the research.

This research used a cross sectional analytic study. The study sample was taken for 1 month (July–August 2019 period). The study was conducted at public health centers in the city of Bandung. By using stratified random sampling method, the location was taken from 1 public health in each sub-district with the most population coverage, so that 30 public health centers were researched. Sampling was done by consecutive sampling. The research samples were patients/patient families and health workers who were at public health center who met the inclusion and exclusion criteria.

This research received ethical approval at the Hasan Sadikin Hospital Bandung Health Research Ethics Committee (LB.02.01/X.6.5/185/2019). Participants filled out a questionnaire regarding characteristic participants, knowledge, attitude, and behavior towards head and neck cancer.

The survey was available in hard copy (paper version). The survey was divided into 4 sections. In the first part containing respondent’s
characteristic including cancer history and family history. The second portion of the survey included several multiple-choice questions that assess knowledge about HNC. The were 12 questions on knowledge, the topics included identifying HNC risk factors, clinical signs, symptoms, and common tumor locations. For the objective portion, a point value was assigned to the correct answer and respondent were assessed based on the number of points they earned for this portion of the questionnaire. The third area of the questionnaire inquired about attitude towards HNC. There were 11 questions about attitude by answering agree or disagree. Attitude responses were recorded, and trends were identified. The fourth section on behavior contains 8 questions. The questionnaire was declared valid with a value of $r=0.247–0.505$ (knowledge), $0.257–0.628$ (attitude), $0.582–0.699$ (behaviour) and reliable with a value of Ratability Coefficient $= 0.221$ (knowledge), $0.247$ (attitude), and $0.528$ (behavior). All questions were answered directly by the respondents by selecting the statement that fit best with the respondent’s situation.

The knowledge divided in 2 criteria and can be interpreted with a qualitative scale: good of knowledge if the respondent answers the question correctly and the percentage is $\geq 70\%$. Lacks knowledge if the answer is wrong and the percentage is $<70\%$.18 The minimum score is 7 and the maximum score is 12. The wrong answer scores 0 and the correct answer scores 1.

Attitude assessment uses a Likert scale. Positive statements: strongly agree (4), agree (3), disagree (2), strongly disagree (1). Negative statements: strongly agree (1), agree (2), disagree (3), strongly disagree (4).19

Behavior divided into 2 criteria, positive statements (yes) if the respondent answers according to the behavior of early detection of head and neck cancer and negative statements (no) if the answer is not appropriate. Positive statements: score 1 (yes) and score 0 (no). Negative statements: score 1 (no) and score 0 (yes).

Measurement data were displayed in tabular form and analyzed using IBM SPSS statistics software version 23.0. All answers to the questionnaire are added up for each answer to each question, converted into percentages and then analyzed with chi-square test.

**Results**

All the 650 respondents, with the community consisting of patients or family patients as many as 480 people (74%) and health workers as many as 170 people (26%). Most respondents in this study aged 40–49 (25%), with the youngest and oldest respondent was 15 years old and 73 years old, respectively, with a mean of 38.43 years old. Most participants were female (62.2%). Most of them had senior high school education (49%), followed by diploma/college (21%). Participant’s occupation was evenly distributed among various professions. Most participants were married (77%). Most participants not have a family history of HNC (97%) and not have mass personal history (92%) (Table 1).

Level of knowledge, attitude, and behavior towards head and neck cancer was obtained by interviewing health workers and patients at 30 public health centers in Bandung. Most of the respondents had good knowledge, positive attitude, and good behavior from the collected data. Researchers found in 501 (77%) out of 650 respondents with good knowledge of head and neck cancer. Respondents with positive attitude 630 (97%) and good behavior 611 (94%) out of 650 respondents towards head and neck cancer (Table 2).

Bivariate analysis in this study was conducted to determine the relationship between the level of knowledge, attitudes, and characteristics with the behavior of early detection of head and neck cancer and the relationship between knowledge and attitudes towards early detection of head and neck cancer.

Respondents who have good behavior majority have good knowledge, namely 84% and positive attitude (88.4%). From the results of the analysis using the chi square test, it was found that the level of knowledge had a significant relationship with the behavior of early detection of head and neck cancer with a p-value of 0.015 (p-value <0.05). This shows that the high level of knowledge about early detection of head and neck cancer, the better the behavior of early detection of head and neck cancer. Attitude with early detection behavior of head and neck cancer has a significant relationship (p-value 0.015). This shows that the more respondents have a positive attitude towards early detection of cancer, the better their behavior towards early detection of head and neck cancer (Table 3).
Table 1 Characteristic of Respondents

| Respondents                  | Number | Percentage (%) |
|------------------------------|--------|-----------------|
| Patients/family patients     | 480    | 74              |
| Health workers               | 170    | 26              |
| Sex                          |        |                 |
| Male                         | 246    | 37,8            |
| Female                       | 404    | 62,2            |
| Age group                    |        |                 |
| 15–19                        | 47     | 7               |
| 20–29                        | 126    | 20              |
| 30–39                        | 142    | 22              |
| 40–49                        | 158    | 25              |
| 50–59                        | 94     | 14              |
| 60–69                        | 55     | 8               |
| >70                          | 28     | 4               |
| Education                    |        |                 |
| No school                    | 4      | 0,6             |
| Elementary school            | 73     | 11,2            |
| Junior high school           | 119    | 18,2            |
| Senior high school           | 319    | 49              |
| Diploma/College              | 135    | 21              |
| Marital status               |        |                 |
| Not married                  | 117    | 18              |
| Married                      | 503    | 77              |
| Widow/er                     | 30     | 5               |
| Occupation                   |        |                 |
| Does not work                | 75     | 11,5            |
| Housewife                    | 123    | 18,9            |
| Labor                        | 96     | 14,7            |
| Farmer                       | 54     | 8               |
| Private employees            | 67     | 10,3            |
| Enterpreneur                 | 84     | 13              |
| Government employees         | 106    | 16,3            |
| Student                      | 8      | 1,2             |
| Retired employees            | 37     | 5,6             |
| Family history of head and neck cancer |        |                 |
| Yes                          | 15     | 3               |
| No                           | 635    | 97              |
| Respondent’s personal history|        |                 |
| Tumor                        | 41     | 6               |
| Cancer                       | 15     | 2               |
| No mass                      | 594    | 92              |
Based on the results of the cross tabulation in Table 4, it was found that age and education had a significant relationship with the level of knowledge about head and neck cancers (p<0.05).

### Discussion

In our study majority respondents were between 40–49 (25%) years old, followed by 30–39 (22%), and 20–29 (20%) years age group. Age can determine the level of maturity in thinking and working, this is related to the knowledge and experience gained during life and can affect a person's behavior.20 The age group including in the productive age group that has the potential to get the risk of disease from work and endurance. This is according to with Damayanti et al,21 study at Health Care accredited as main and plenary accreditation in Semarang which stated that 70.85% of visitors were of productive age. Most respondents in this study were female (62.2%). Moreover, most of them were married (77%) and most occupation respondents were housewife (18.9%). This finding is in accordance with Damayanti et al study reported that 58.3-66% visitor at health care in Semarang were female. The females are more susceptible to disease and want medical assistance more quickly if they experience health problems than male.

From the results of the study, most respondents had senior high school (49%) followed diploma/college (21%). A high level of education will also indirectly provide personal experiences that can be used as an effort to gain knowledge in solving the problems faced.18 Aside from the education level, experience, and cultural factors, there are other factors that are closely related to the knowledge of HNC. Education is a process of changing attitudes and behavior of a person or group and also an effort to mature humans through teaching and training efforts.

### Table 2 Level of Knowledge, Attitude, and Behavior Towards Head and Neck Cancer

| Variable        | Number | Percentage (%) |
|-----------------|--------|----------------|
| Knowledge       |        |                |
| Lack            | 149    | 23             |
| Good            | 501    | 77             |
| Attitude        |        |                |
| Positive        | 630    | 97             |
| Negative        | 20     | 3              |
| Behavior        |        |                |
| Yes             | 611    | 94             |
| No              | 39     | 6              |

### Table 3 Relationship between the Level of Knowledge And Attitude with Behavior Early Detection of Head and Neck Cancer

| Knowledge and Attitude | Behavior (Early Detection) | p-value* |
|------------------------|---------------------------|----------|
|                        | Yes | % | No | %    |          |
| Knowledge              |    |   |    |      |          |
| Good                   | 483 | 84| 92 | 16   | 0.015    |
| Lack                   | 40  | 53.3| 35 | 46.7 |          |
| Attitude               |    |   |    |      |          |
| Positive               | 328 | 88.4| 43 | 12.6 | 0.015    |
| Negative               | 182 | 65.2| 97 | 34.8 |          |

*Chi square test
Education affects the learning process, the higher a person's education, the easier it is for that person to receive information. With higher education, someone will tend to get information, both from other people and the mass media. In this study, participants obtained HNC knowledge from information and experience that would make them easier to understand HNC, particularly regarding the definition, risk factors, signs and symptoms, causes, and ways of early detection of HNC. Knowledge is information known or recognized by someone. Knowledge is not limited to descriptions, hypotheses, theoretical concepts, principles, and procedures which are probably true or useful. Knowledge is divided into two categories namely the knowledge obtained by observation and the observation made empirically and rationally and knowledge gained through reasoning, later known as rationalism.

Based on earlier studies by Dwojak et al. and Luryi et al., reporting low HNC knowledge in non-Indonesian populations. Study participants were most deficient in knowledge of signs and symptoms of HNC, which poses serious health concerns from the standpoint of measures on HNC prevention, early diagnosis, and recognition of disease. This contradicts the results we got, 77% respondent have a good level of knowledge and 97% have a positive attitude. There is strong evidence that patients who lack awareness of the cardinal signs and symptoms of HNC may fail to seek medical attention at the early, treatable stages of the disease.

When participants were asked about their knowledge of head and neck cancers, it came out that, level of knowledge about HNC was good (77%) and poor (23%). Chi-square statistical test results obtained p-value = 0.015, which means that there is a significant relationship between the level of knowledge with early detection of head and neck cancer. This is consistent with the theory which states that behavior is still an obstacle for the community to conduct early detection of head and neck cancer. Increased knowledge will not always cause behavioral change, but shows a positive relationship between the two variables so that if the level of knowledge is high then the behavior tends to be good.

Attitude is a person's closed response to a particular stimulus or object, which is already involved in approval and approval factors (happy not happy, agreeing, disagreeing, good or not, and so on). Attitude is not yet an action or activity, but it is a predisposition to the action of a behavior. The existence of a good attitude can be caused by knowledge, training, as well as a lot of experience gained.

Based on the results of the study showed that respondents with a good attitude tend to have good early detection of head and neck malignancy behavior. This can be explained that respondents who have early detection of good head and neck cancer by 3% have less attitude, as many as 97% have a good attitude. The results of the chi-squared statistical test obtained p-value =0.015, which means that there is a significant relationship between attitude and behavior of early detection of head and neck cancer. Attitudes are general evaluations, reaction or response made by humans on themselves, others, or issues in circulation. If someone's reaction or response is positive then one's behavior also tends to be positive as well if someone's reaction or response is negative then that person's behavior also tends to be negative too. So that if someone agrees or has a positive attitude towards the screening examination of the head and neck malignancy, then based on the theory a person will conduct an early detection examination.

Therefore giving counseling to the community, especially in the city of Bandung, is very useful because that way the public can find out the factors and signs of symptoms of head and neck cancer, so that people can detect early on these things. Health workers should be initiated like various other national programmes, and important danger signs of HNC, and they have to be aware regarding the condition and has to be referred immediately to the tertiary care centre, so that early detection and diagnosis can be established. Cost effective screening which can detect cancers at an early, treatable and less costly stage, is an important part of delivering affordable cancer care in Bandung.

The limitations of study were the researcher, did not directly interview the respondent, lack of time in study, few information regarding participant's deepen knowledge and attitude towards head and neck cancer.

Based on the questionnaire obtained the high level of awareness and knowledge of health workers and society against early detection of head and neck cancer in Bandung City.

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References

1. Siegel R, Naishadham D, Jemal A. Cancer statistics, 2013. CA Cancer J Clin. 2013;63(1):11–30.
2. Gupta B, Johnson NW, Kumar N. Global epidemiology of head and neck cancers: a continuing challenge. Oncology. 2016;91(1):13–23.
3. Heroiu AD, Danciu CE, Popescu CR. Multiple cancers of the head and neck. Maedica J Clin Med. 2013;8(1):80–5.
4. Tobungan N, Wijayanti N. Epidemiologi, stadium, dan derajat diferensiasi kanker kepala dan leher. Biogenesis. 2015;3:47–52.
5. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, Coebergh JW, Comber H, et al. Cancer incidence and mortality patterns in Europe: estimates for 40 countries in 2012. Eur J Cancer. 2013;49(6):1374–403.
6. Manickam A, Saha J, Ghosh D, Sengupta S, Biswas D, Basu SK, et al. Community awareness-A key to the early detection of head and neck cancer. Bengal Journal of Otolaryngology and Head Neck Surgery. 2016;24(1):7–14.
7. Joshi P, Dutta S, Chaturvedi P, Nair S. Head and neck cancers in developing countries. Rambam Maimonides Med J. 2014;5:e0009.
8. Vaezi A, Grandis JR. Head and neck tumor biology. In: Johnson JT, Rosen CA, Newlands S, Amin M, Branstetter, Casselbrant M, et al., editor. Bailey’s head and neck surgery-otolaryngology. 5th ed. Philadelphia: Wolters Kluwer, Lippincott Williams & Wilkins. 2014. p. 1648–71.
9. Manickam A, Saha J, Ghosh D, Sengupta S, Biswas D, Basu SK, et al. Community awareness-A key to the early detection of head and neck cancer. Beng J Otolaryngol Head Neck Surg. 2016;24(1):7–14.
cancers: a population-based study in a high incidence area. BMC Cancer. 2016;16:456.
24. Conway DI, Brenner DR, McMahon AD, Macpherson LM, Agudo A, Ahrens W, et al. Estimating and explaining the effect of education and income on head and neck cancer risk: INHANCE consortium pooled analysis of 31 case-control studies from 27 countries. Int J Cancer. 2015;136(5):1125–39.
25. McEachan RRC, Conner M, Taylor NJ, Lawton RJ. Prospective prediction of health-related behaviours with the theory of planned behaviour: a meta-analysis. Health Psychol Rev. 2011;5(2):97–144.