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Behavioral Impact on Kidney Function among Indonesian Migrant Workers

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Abstract

Migrant workers constitute 18% of the total number of Indonesian end stage renal disease (ESRD) patients receiving hemodialysis (HD). The tragedy is that, they usually learn only when it is too late to prevent or cure it, they experience very few symptoms. This study aimed to analyze the behavior of migrant workers undergoing hemodialysis and how they contracted this disease. A qualitative design with a phenomenological approach was employed to carry out on the former migrant workers suffering from chronic kidney disease (CKD). In-depth interviews were used for data collection, and data validation used triangulation and confirmability. Data analysis techniques were performed by reducing and interpreting the evidence. It was found that migrant worker behavior prior to their overseas employment was extremely harmful. They often drank various brands of energy drinks, and adopted the dietary habits of the country where they are employed, such as drinking alcohol, soft drinks, and regular fast food as opposed to drinking water, eating vegetables, and fruit. They also did not exercise regularly. They pursued activities influenced by the work system and individual interests to earn extra income, with the priority to work as much overtime as possible. Consequently, the problems of migrant workers' dietary behavior, added to hereditary hypertensive disease, has directly impacted their kidney function. This study establishes that migrant workers have little knowledge about "healthy lifestyles" and causes of CKD. Mistaken perceptions and attitudes of the migrant workers supported the harmful cultures in the migrant countries.

Keywords: Behavior, chronic kidney disease, migrant worker

Introduction

Employment problems in Indonesia are disproportionate to the population. Implementation of job creation programs is not optimal. Consequently, the empowerment of local human resources and the improvement of the regional economy by the regional government has caused many Indonesian people to becoming migrant workers.

Ponorogo is one of the districts in East Java with a large number of migrant workers. The dream of a lucrative income and the need to repay the loan for their departure from one of the Indonesian manpower service providers encourage them to sign up for additional working hours. A packed workload drives them to choose stimulating energy drinks to keep them awake and moving. Some herbal products contain aristolochic acid, which is known to be nephrotoxic and carcinogenic. Aristolochic acid nephropathy, first reported in Belgium as "Chinese herbal nephropathy," is characterized by the progressive fibrosis of interstitial nephritis causing kidney failure and anemia.[1] Isroin[2] states that 18% of chronic renal failure patients in Ponorogo are former migrant workers. Other countries with large groups of former migrant workers with chronic renal failure are Malaysia, Japan, Taiwan, and Hong Kong.

Despite the short-term benefits of energy drinks, long-term disadvantages appear to include damage to the liver, kidney, and other organs.[3] Cases of chronic renal failure are rapidly increasing, especially in some developing countries. The disease has become a major worldwide health problem, since it augments morbidity, mortality, and social, and economic burdens for sufferers, families,

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and government. Based on the problems above, Indonesians should not imitate the behavior of workers who suffer from chronic renal failure. Countermeasures and prevention are the most important points to reduce the number of victims of the disease.

The phenomenon of migrant workers experiencing chronic kidney failure and having to undergo lifelong hemodialysis (HD) is a serious health issue. Only migrant workers themselves know why they have CKD. Excavation of the causes of chronic renal failure in former migrant workers is done through in-depth interviews to obtain detailed information. This phenomenon produces a multisectoral case involving government, Indonesian manpower service providers, workplaces in migrant countries, and families. When migrant workers are still under contract, the knowledge will harm the Indonesian manpower service provider and the workplace. Afterwards, the migrant workers suffer and become a burden for their families and the government.

The results of this study consist of a recommendation that the government and Indonesian manpower service providers must prevent this catastrophic illness by educating workers who anticipate foreign employment to avoid the behavior of former migrant workers who now suffer from chronic kidney failure. Countermeasures or prevention are the most important measures to reduced the number of migrant workers suffering from kidney failure in particular and the number of patients with kidney failure in the general population. This study aimed to analyze the behavior of Indonesian labor migrants who were HD before becoming migrant workers and when working in a migrant country.

Method

This study wass qualitative descriptive applying phenomenological design. The study focused on the real experience of Indonesian workers who suffered from chronic renal failure. The study population was former labor migrants who underwent HD in Dr. Harjono Hospital, Ponorogo. Along with their families and formerly healthy migrant workers, there were a total of 10 people, consisting of four former migrant workers who underwent HD, their families (four people), and former migrant workers who were healthy (two people). Sources of data in this study are written data sources and in-depth interviews. The researcher examined the identity data of prospective participants in the registration book of the Hemodialysis Room of Dr. Harjono Hospital, Ponorogo. A place-and-time agreement for the interview was made then. Data collection was carried out using in-depth and semi-structured interviews.

Data validation in this study used triangulation and confirmability. Triangulation utilized other outside data for comparison. Triangulation was carried out for migrant workers who did not experience chronic renal failure, as well as their families. Confirmability was carried out at the time of the second interview to determine the temporary themes from the textural description, to further accuracy of the data. Qualitative data analysis related to the data reduction and interpretation.

The steps of analyzing the phenomenological study are organizing all collected data into keywords; encoding the data into categories; horizontalising is an Indonesian term for sorting out the textural meaning and phenomena forming elements in the form of sub-themes and eliminate some overlapping and irrelevant statements of the topic; writing down the textural meaning and elemental phenomenon in the unit, meaning how experience occurs in the form of textural description (explaining the phenomenon that occurs in the informant) and structural description (explaining how the phenomenon occurs); developing textural and structural descriptions in accordance with the objectives of study; explaining the essence of the phenomenon and distilled the meaning of the informant's experience regarding the phenomenon into narrative.

Results

The number of informants in this study were ten, consisting of migrant workers who experienced CRF with code 1, informants and migrant workers who did not experience CRF with code 2, and families of migrant workers who experienced CRF with code 3 (Table 1).

Based on the type of food eaten, the diets of migrant workers were largely considered as unhealthy, such as instant noodles, without vegetables and/or fruits. Testimony was typically like so:

"Every afternoon I ate instant noodles, because I was tired. Instant noodles were easy and cheap. I had dinner very late sometimes." Informant 1.2

"I ate fruit 1–2 days/week. Fruits and vegetables were expensive (Taiwan)."

"The type of food and drink depended on the habits of individuals, friends and workplaces." Informant 1.1

"I ate what the household ate: rice, bread, instant noodle, hamburger." Informant 1.4

Based on the answers of the informants, the type of food eaten was strongly influenced by the working environment. Migrant workers in the factories were likely to eat according to the habits of their friends, whereas migrant workers who worked in the households were likely to follow their employers' lead. However, there were also those who consumed healthy foods, as the following informant described:

"Every day I ate rice, chicken, eggs, and vegetables. I had meat sometimes and offal rarely." Informant 1.3

Table 1. Characteristics of Informants

Informant Code	Sex	Age (years)	Migrant Country	Length of Working (years)	Occupation	Status	Hereditary Disease
1-1	Male	32	Taiwan	8,5	Factory worker	Chronic renal failure Sufferer	-
1-2	Male	35	Malaysia	4	Factory worker	Chronic renal failure Sufferer	-
1-3	Male	45	Malaysia	15	Factory worker	Chronic renal failure Sufferer	-
1-4	Female	25	Singapore	3	Housemaid	Chronic renal failure Sufferer	-
2-1	Male	32	South Korea	2	Factory worker	Teaching staff of the 'Choigo' Korean Language Course	-
2-2	Male	28	South Korea	2	Factory worker	Former migrant worker and will leave again	-
3-1	Male	32	-	-	-	-	Hypertension
3-2	Female	35	-	-	-	-	Hypertension
3-3	Female	45	-	-	-	-	Hypertension
3-4	Female	25	-	-	-	-	Hypertension

As for smoking, most informants stated that they smoked one pack per day:

"I smoked one pack of 20 sticks for two days."

"My smoking habit was influenced by weather, friends, and workplace." Informant 1.1

The types of drinks consumed by migrant workers varied. Some stated that they rarely drank water, but often drank bottled energy drinks and refreshing soft drinks. As described:

"I drank water rarely, especially in the winter. The price of soft drinks and energized drinks was cheaper and had a refreshing taste that restored my energy to work harder. In winter, there were meals at the factory. I drank alcohol but didn't get drunk." Informant 1.1

"I drank Hemaviton Jreng 1-2 x/week if I was tired." Informant 1.3

"I drank Milo and soft drinks that were sweet and cold during the summer."

"I drank kratingdaeng." Informant 1.3

Some informants who worked in Malaysia said:

"I drank liquor often." Informant 1.3

"In the winter, we had meals at the factory. We drank alcohol but didn't get drunk." Informant 1.1

The weather affected several things, including the types of drinks consumed and the price of bottled drinks that were cheaper than water. The rest periods of migrant workers were mostly used to work overtime to supplement their income, as said:

"There were some workplaces that adhered to working hours rules [which called for] eight hours of work time. There were also workplaces that took advantage of Indonesian workers who desired to earn more income by working through their breaks and overtime." Informant 1.1

The informant also said:

"Breaktime depended on the workplace and the desire of Indonesian workers to earn more income. There were workplaces that had breaks every 2 hours while others only had one hour for 8–12 hours of work."

"There were some workplaces that utilized the desire of Indonesian workers to earn more income by working over and short breaking time."

"On Sundays, I went to the mall to hang out." Informant 1.2

In regards to recreation, most migrant workers used their vacation time for recreation, such as travelling to the mall, gathering with friends, and shopping. As described:

"On Sunday, I went to the mall to hang out." Informant 1.2

"We gathered with fellow Indonesian workers between once a week and once-a-month." Informant 1.4

The informant whose wife also became a migrant worker said:

"I went shopping with my wife." Informant 1.1

Informants' stress is described in this statement:

"Indonesian workers who need more income will use their overtime by working. Consequently, they will get tired and stressed more easily." Informant 1.1

Some informants did not know if they suffered from chronic renal f. The informant said,

"I did not feel symptoms, only the results." Informant 1.1

"I worked on and on and never thought I was sick until symptoms of nausea and vomiting arose. I lost my appetite. My doctor said that it was a neurological disease and gave me medication. After consuming the medicine, he examined me and said I had renal failure." Informant 1.2

"I had nosebleeds in the winter and got medicine for it. But I still had nosebleeds. Then I had another medical check-up and the result was chronical renal failure." Informant 1

"I had nausea and vomiting and only a little

urine." Informant 1.3

Most migrant workers believed that the factors causing them to get CRF were their habits of consuming carbonated, alcoholic energy drinks containing preservatives. These informants had the following perceptions about the cause of their chronic renal failure:

"I was affected by chronic renal failure, in my opinion, because the additional work required strong energy. So, Indonesian workers did not take breaks and consumed energetic, alcoholic, carbonated, and packaged drinks."

"Because I drank energetic and soft drinks, and less mineral water."

"I got chronic renal failure because I drank herbal powder and mixed it with herbal medicine." Informant 1.2

"I often ate foods that contained preservatives, so I was exposed to get chronic renal failure." Informant 1.1

"Indonesian workers who were affected by chronic renal failure seemed to have consumed fizzy alcoholic energy drinks." Informant 2.2

In addition to the types of food and drinks consumed, some migrant workers argue that patterns of mental stress and and hard work can also cause CRF:

"The mindset must relax, because high blood pressure makes the kidney work hard." Informant 1.1

Most migrant workers claim that their daily behavior followed friends, employers and their workplace environments:

"I was a new migrant worker, so I followed my superiors and the factory behavior." Informant 1.1

"I followed friends, employers, and the environment, so that I could work comfortably."

"The boss was able to persuade us how to adapt in a migrant country." Informant 1.4

Some migrant workers also argued that their behavior was strongly influenced by economic conditions, because, the price of unhealthy food was relatively cheaper:

"Cheap prices for food and beverages might add to Indonesian workers migrants' profit." Informant 2.1

Regular health checks in migrant countries depended on where the migrants worked. Most did not have their kidney checked:

"Every 3–6 months we had screenings for blood pressure, malaria, and drug use, but there was no renal function examination."

"The workers who got sick were cured and got well." Informant 1.1

"When I got my contract extension, I did not have any more health exams. I was automatically accepted but it turned out that I had been affected by chronic renal failure." Informant 1.2

There was no health insurance, only accident insurance, as stated by the following informant:

"We had work accident insurance only. The Indonesian Workers Service Company had health insurance, but it was difficult to take care of." Informant 1.2

Discussion

The dietary problems and hereditary hypertension of migrant workers had a negative impact on their kidney function. The workers had no knowledge about healthy lifestyles and CRF diseases. Wrong perceptions and attitudes of other migrant workers supported this unhealthy culture. Most migrant workers work in Taiwan, South Korea, and Malaysia. Culture and lifestyle in those countries predispose them to the incidence of kidney failure, hence migrant workers working there are especially susceptible. This is similar to Narayan's study result that the most prevalent incidence of ESRD in Asia occurs in Taiwan, South Korea, and Malaysia.[5]

Migrant workers had little knowledge about healthy lifestyles. They were likely to eat modestly and often too tired to search out more than the simplest, cheapest foods. They rarely ate fruits and vegetables due to their added expense. Informants also tended to drink packaged, energized, sweet drinks because they provided more energy than mineral water. With the informants' ignorance of healthy lifestyle, their unhealthy practices actually made sense according to their needs in their adopted countries.

According to Notoatmodjo, each person has two factors that respond to different stimuli, namely internal factors, meaning the person's acquired or innate characteristics and external factors, drawn from the physical, social, cultural, economic, political environment, etc.[6] Socio-cultural factors are the dominant influences on migrant workers abilities to adapt to their new countries. Such factors have the power to adhere to all patterns of rules, including lifestyles. Socio-culture in a migrant country is a power that is able to lead and direct migrant workers to behave according to their knowledge. The majority of migrant workers do not know about the socio-cultural impacts in migrant countries that might cause chronic kidney failure. Nor do they know of the high incidence of chronic kidney failure in migrant countries as a result of unhealthy lifestyle choices.

Taiwan, the world's highest incidence of ESRD due to its use of traditional medicines, is the number two destination for Indonesian migrant workers.[7,8] This is in accordance with the information of migrant workers from Taiwan, who stated that they often drank *polita*, alcohol, and soft drinks.

Indonesian workers have a greater tendency to drink

certain kinds of bottled or powdered drinks and eat instant or fast food because of their benefits, such as low prices, refreshing taste, and energy boosts so as to work harder. According to Tanjoyo and Gunawan, the prevalence ratio (PR) from energy drinks were one of the risk factors for chronic renal failure disease (PR > 1).[3] It was exacerbated by the failure to drink sufficient mineral water, driving up the PR value that much high. Lack of mineral water was one of the main factors in the occurrence of kidney disease. An increase in one's energy intake from soft drinks was greater than that recorded alone, indicating that energy drink intake was also higher. Another study reported a positive relationship between consumption of soft drinks and numerous risk factors for metabolic syndrome. Lifestyle issues, such as high protein, salt, cigarettes, and alcohol consumption, usually associated with men's lifestyles, leads to the greater incidence of CKD within that gender.[9-12]

This lifestyle was also something new for these men; that made life for them easy and enjoyable. Notoatmodjo made this point, that a new stimulus will attract attention more than one that is already known. According to Notoarmodjo, needs and motivation also influence the perception.[6] The need for ease, enjoyment of life and motivation to work also influenced the informants' perception of lifestyle in their migrant countries.

The informants did not know the predispositions of unhealthy lifestyle and hereditary hypertension[13] to chronic kidney failure. Increased economic and health inequality, migration, demographic transition, unsafe working conditions, and pollution can hinder efforts to reduce morbidity and mortality from kidney disease. While the etiology of chronic renal failure, according to Brunner & Suddarth, is a systemic disease such as diabetes mellitus, there is also uncontrolled hypertension. According to a study by Henulili *et al*. in Kalangi, about the pattern of hereditary hypertension in families, hypertensive genes are dominant.[15] Uncontrolled hypertension over a long period of time causes elevated intraglomerular pressure that affects glomerular filtration. Histologic lesions of glomerulosclerosis include interlobular blood vessel myointimal hyperplasia; afferent arteriole, hyaline arteriosclerosis; and, most commonly, global glomerulosclerosis. This change is the result of glomerular ischemia due to narrowing of the afferent arteriole. In response to increasing afferent arteriolar flow, there will be a myogenic contractility response, plus feedback from tubuloglomerular signals from the macula densa.

From there, glomerular capillary pressure will likely increase, raising the risk of sclerosis. This damage disrupts the ability of the kidneys to filter fluids from the blood, which causes an increase in blood volume, resulting in an increase in blood pressure.[16] Under normal renal blood flow (RBF) conditions, variation in the Mean Arterial Pressure (MAP) is small (80–160 mmHg). Increased pressure over this range, however, will cause afferent arteriolar vasoconstriction, even when RBF and glomerular capillary pressure are constant. MAP>160 mmHg or autoregulation blocked due to kidney disease, diabetes, or a high-protein diet will increase the mechanical pressure of glomerular capillaries and mesangial cells, inducing a response mediated by fibrogenetic cytokines and angiotensin II. This repair response can cause glomerulosclerosis which is exacerbated by the presence of local factors such as proteinuria.

Although the informants' blood pressure during medical examination were normal, they nonetheless behaved unhealthily in the migrant countries, triggering lesions in the glomerular arterioles. The results of Josiah's study revealed that groups of animals given soft drinks developed several levels of distortion and interference within the cytoarchitecture of the renal cortex, diffuse glomerulonephritis with multiple congestion, and tubular necrosis compared with the control group.[4] There were also varying distortion rates depending on different beverage brands. This caused a gradual decline in renal function until the final stage, namely GFR<15 mL/minute/1.73 m².

Chronic renal failure was a silent killer. Informants did not feel any symptoms of changes in renal function until stage 3. After an intrinsic arteriolar renal/hyaline arteriolosclerosis lesion occurred, symptoms of chronic renal failure would appear.

The informants also passed the health examination carried out by the workplaces in their adopted countries, because it did not test for kidney function. The diagnosis of kidney disease is often hampered by a lack of awareness among health workers, communities at risk, inadequate access to health, and often erratic laboratory testing.[15] Migrant workers are a risk group because of their ignorance of the consequences of their lifestyle.

This was the case in Taiwan due to low awareness and detection of chronic kidney disease. Only 8% of patients with stage-3 kidney disease are aware of the status of the disease.[8] Migrant workers experience kidney failure because they're unaware of the risk and they are supported by health workers who are likewise unaware of the importance of early detection. They are ill-served by inadequate and often erratic access to laboratory testing.[13] Complaints of headaches and weakness are perceived as fatigue. By the time the kidney has fully lost its function in stage 5, the new patient feels real symptoms, namely an increase in blood pressure, shortness of breath and edema. The patient's complaint indicates that the kidney is not functioning and dialysis must be started.

Sustainable development goals must include raising awareness of how nephrotoxic drugs and drinks affect kidney health, and emphasize the critical importance of

reducing and/or avoiding their use.[13]

A person's lifestyle can overcome the influence of prior living conditions and behaviors. The informants received, supported and followed their seniors' lifestyles; those became the workplace/factory/company style. In practical terms, life in migrant countries encourages workers to accept and follow unhealthy lifestyle practices. There are obstacles to rejecting such lifestyles, such as lack of knowledge and the pressures of social group activities.

Most migrant workers receive no higher than elementary or junior high school educations.[7] The low education level inhibits migrant workers from processing and analyzing the cultural pros and cons of their adopted countries. The attitudes of migrant workers are strengthened by the failure of their home governments to debrief them. Add to that the failure of the Indonesian Migrant Worker Service Provider to counsel them about harmful aspects of their lifestyles, including those that can cause chronic kidney failure and other disabilities.

Social motivations tend to drive people toward group affiliations, to care about friendly relationships and to always look for them. They like being in on opportunities to meet new people, even if it involves following unhealthy, careless lifestyle cultures. Migrant workers often do not realize the need to exercise social control. They need friends and are afraid of being rejected. As social beings, migrant workers cannot live alone. They always depend on one another. Migrant workers need communication with their seniors and indigenous migrant countries.

According to study by Lubman,[17] study participants were motivated to drink energy drinks because of taste, and their connection to parties and other social activities, and increased energy. Participants reported drinking 2–3 bottles daily for 12 months. A person's lifestyle is expressed by activities, interests, and opinions that can positively or negatively affect them, depending on the characteristics of the activity. Group activity is an information source that is easily affected within a social environment. Wibowo[18] also explained that one's closest acquaintance has an important role when it comes to providing information and support. Young respondents tend to feel that they will live eternally because the effects of unhealthy lifestyles often do not occur immediately.

The company did not perform thorough check-up examination specific to the interests of Indonesian workers, e.g., malaria and drug tests. Based on data from National Agency for Placement and Protection of Indonesian Workers (*BNP2TKI*) in 2018, data on the complaints of migrant workers who were sick amounted to 3.65% of all complaints.[7] This is in accord with data from informants that companies used the needs of migrant workers to earn more income with additional

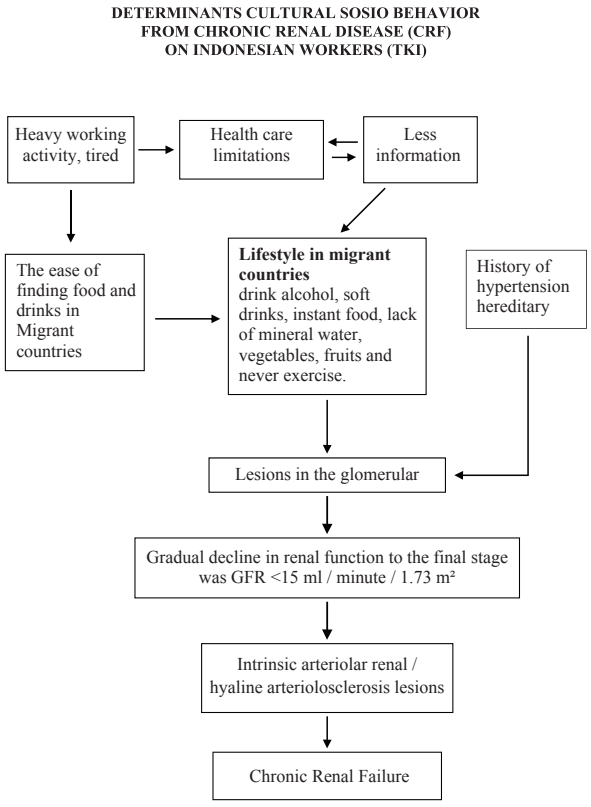

Figure 1. Determinants of Socio-cultural Behavior that Cause CKD in Migrant Workers

work, but that they were not balanced with comprehensive health examinations. Informants from South Korea also said that no re-examination was carried out when extending a contract.

Although some companies examined blood pressures, they did not look for overall body health. Their justification was that the patient had not complained even though they had experienced renal failure at the HD stage.

Figure 1 explains that CKD is a complex result of genetic and environmental factors.[19] Indonesian migrant workers abroad are faced with changes in lifestyle without sufficient information regarding how to protect themselves from potentially devastating disease. They are unwittingly lulled into following the lifestyle examples of their seniors and migrant communities. Unhealthy behaviors in migrant countries include such habits as drinking alcohol, canned drinks, lack of fresh water, fruit and vegetables, and lack of physical exercise. Indonesian migrant workers feel that their new lifestyle provides fresh energy after strenuous activities and fatigue due to overtime work, because canned drinks and soft drinks are a source of hydration. The ease of finding non-nutritious, unhealthy food and beverages creates a serious danger for these workers.

Limitations of workplace health checks are lack of kidney function test and hereditary hypertension. They

do not note the accelerating progressive decline in kidney function until the patient has significant complaints. A 10-week experimental study showed that people who consumed sugary drinks showed an increase in systolic and diastolic blood pressure. The results of the study reported a positive relationship between consumption of soft drinks and onsets of hypertension. Once the kidneys have developed lesions in the glomerular arterioles, workers will experience, often unsuspecting, a gradual decrease in kidney function until the final stage of GFR <15 ml/minute/1.73 m² occurs in intrinsic arteriole renal lesions/hyaline arteriolosclerosis, when they suddenly note several significant complaints. The kidney function is to eliminate waste metabolism products from the blood and regulate the balance of water and electrolytes in the body. They are involved in the excretion of many toxic metabolic waste products. Once the kidneys are already damaged, only then are workers likely to begin complaining of nausea, vomiting, tightness, weakness, and dizziness. At that point, they have already likely experienced kidney failure which can only be treated with expensive and not-easily available HD. Social determinants are an important theme for future CKD study. Transdisciplinary research efforts within the social, behavioral, and biological disciplines will help to more fully understand the relationships between social and health factors.[19]

Conclusion

Indonesian migrant workers have a greater tendency to drink sugared bottle and packaged/boxed drinks because they restore energy quickly. Fatigue is also a factor for Indonesian migrant workers to consume instant food because it is easy to buy and prepare. Migrant workers drink less water and prefer to drink boxed, sparkling, energized drinks because the price is cheap and the taste is refreshing and they strengthen one's energy to work harder. The behavior problems of migrant workers and hereditary hypertension directly impact kidney function. Migrant workers do not have knowledge about healthy lifestyles and CRF diseases. Wrong perceptions and attitudes among migrant workers support unhealthy cultural behaviors in the migrant countries. Changing the social determinants of health, although difficult, can be a key to designing and enacting new policies.

Recommendation

The Government and Indonesian Manpower Service Provider should provide health education on the impacts of unhealthy lifestyle choices in migrant countries. Thorough medical check-ups should be performed for Indonesian workers by Indonesian Manpower Service Provider and the Transmigration Service for early detection of a declining renal function, renal function tests, and record of hereditary hypertension. The Government should recommend the Indonesian migrant workers to reduce or avoid consuming energy and caffeine-based soft drinks, as well as instant food, and replace them with healthy lifestyle diets and behaviors.

References

1. Chau W, Ross R, Li JYZ, Yong TY, Klebe S, Barbara JA. Nephropathy associated with use of a Chinese herbal product containing aristolochic acid. Medical Journal Australia [Internet]. 2011 [cited 2019 Jun 18]; 194(7): 367–8. Available from: https://www.mja.com.au/journal/2011/194/7/nephropathy-associated-use-chinese-herbal-product-containing-aristolochic-acid
2. Isroin L. Heavy activity risks chronic renal failure. Pros International Joint Conference; 2015.
3. Gunawan T. Profil penggunaan minuman berenergi pada pasien gagal ginjal kronik di ruang hemodialsis RSSA Malang. Malang: Rumah Sakit Saiful Anwar; 2012.
4. Josiah OA, Joseph CE, Ezekiel UN. Histological effects of chronic consumption of soda pop drinks on kidney of adult wister rats. Nephrology American Journal Medicine Science. 2010; 2(5): 215–7.
5. Prasad N, Jha V. Hemodialysis in Asia. Kidney Disease [Internet]. 2015 Dec [cited 2019 May 27]; 1(3): 165–77. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27536677
6. Notoatmodjo. Ilmu perilaku kesehatan. Jakarta: PT Rineka Cipta; 2010.
7. BNP2TKI. Data Penempatan dan Perlindungan PMI Periode Bulan Juli 2018; 2018.
8. Tsai SY, Tseng HF, Tan HF, Chien YS, Chang CC. End-stage renal disease (ESRD) in Taiwan: a case-control study. Journal Epidemiology. 2009; 19(4): 169–76.
9. Sulistiowati E. Faktor risiko penyakit ginjal kronik berdasarkan analisis cross-sectional data awal studi kohort penyakit tidak menular penduduk usia 25-65 tahun di Kelurahan Kebon Kalapa, Kota Bogor tahun 2011; 2011. Available from:https://media.neliti.com/media/publications/-20128-ID-faktor-risiko-penyakit-ginjal-kronik-berdasarkan-analisis-cross-sectional-data-a.pdf
10. Perhimpunan Nefrologi Indonesia. 6th annual report of Indonesian renal registry; 2009.
11. Australian Institute of Health and Welfare. An overview of chronic kidney disease in Australia; 2009.
12. Ishimura E, et al. Prevalence of and factors associated with chronic kidney disease (CKD) in Japanese subjects without notable chronic diseases, undergoing an annual health checkup. Kidney Blood Press Res. 2012 [cited 2019 Jun 18]; 36: 139–48. Available from: www.karger.com/kbrwww.karger.com/kbr
13. Valerie AL, Marcello T, John WS. The global burden of kidney disease and the sustainable developmen goals. Bulletin World Health Organisation; 2018.
14. Brunner S. Buku ajar keperawatan medikal bedah. 8 edition. Jakarta: EGC; 2013.
15. Kalangi. Hubungan faktor genetik dengan tekanan darah pada remaja. e-Clinic (eCl). 2015; 3(1).
16. Buffet L, Ricchetti C. Chronic kidney disease and hypertension: A destructive combination. U.S Pharmacist. 2012; 37(6): 26–9. Available from: http://www.medscape.com/%0Aviewarticle/766696_2%0A

17. Lubman D. Alcohol and energy drinks in NSW: Research. New South Wales 2013. 2013: 85–213
18. Wibowo M. Dukungan informasi bagi ibu menyusui dalam memberikan ASI eksklusif di Kecamatan Gondokusuman, Yogyakarta. Kesmas. 2016; 11(2): 96–103.
19. Norton. Social determinants of racial disparities in CKD. Journal of the American Society of Nephrology. 2016; 27: 2576–95.