

## Perceptions and behaviors related to noncommunicable diseases in Palau: a qualitative study

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### ABSTRACT

The increasing burden of noncommunicable diseases (NCDs) is a major public health concern in Palau. This study aims to identify social and psychological factors related to NCDs among Palauan people using a qualitative approach. We conducted eight key informant interviews and eight focus group discussions, which were audio-recorded, transcribed and translated into English. Ideas of the respondents were extracted and labeled, and the labels were analyzed using an inductive multistage approach referred to as qualitative content analysis. Three themes emerged: (1) home education, (2) traditional local community, and (3) modernization and westernization of lifestyle. Respondents believed that the influence of the family on lifestyle was significant, but that disciplining children at home had become difficult. They considered that the traditional lifestyle was mostly healthy, and were reluctant to abandon certain unhealthy customs, such as serving abundant food to guests as a sign of fraternity. They also thought that they overate because of their stressful modernized lifestyle. This is the first qualitative study to analyze perception and behavior of the Palauan people in relation to NCDs. We found that the increase in NCDs was related to two concurrent trends: preserving certain traditional customs unfavorable to good health, and abandoning time-consuming healthy traditional lifestyle to adopt a modernized one. We also found that Palauan people were not confident in their ability to prevent NCDs. Therefore, health promotion activities should be designed to empower people to make positive changes.

Keywords: noncommunicable diseases, lifestyle, traditional values, social change, Pacific Islands

#### Abbreviations:

NCD: noncommunicable disease

WHO: World Health Organization

MOH: Ministry of Health

KII: key informant interview

FGD: focus group discussion

NGO: non-governmental organization

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## INTRODUCTION

Noncommunicable diseases (NCDs) are globally recognized threats and additional burdens on health in developing countries.<sup>1</sup> The World Health Organization (WHO) estimates that almost 70% of all deaths worldwide are attributable to NCDs, including ischemic heart diseases, stroke, cancers, diabetes, and obstructive pulmonary diseases; and three quarters of all NCD-related deaths occur in low- and middle-income countries.<sup>2</sup> The rise of NCDs could be curbed by modifying unhealthy lifestyle, such as tobacco use, unbalanced diets, physical inactivity, and the harmful use of alcohol.<sup>3</sup>

The increasing burden of NCDs is a major public health and social concern in Palau, a Pacific island country with a small population of about 20,000. A nationwide epidemiological survey of NCD risk factors conducted by the Ministry of Health (MOH) and WHO revealed that over 75% of Palauan adults were overweight, about 60% used tobacco, about 50% were hypertensive, and about 20% were diabetic.<sup>4</sup> Our study group, in collaboration with the MOH, conducted another epidemiological survey targeting young people.<sup>5</sup> We found that about 50% were overweight and the prevalence of tobacco use and alcohol drinking among the young people was even higher than that among the general adult population. This suggested that interventions to prevent NCDs should be started early in the life course. Such interventions should include lifestyle modification through targeted health education.<sup>6</sup>

Since an epidemiological survey alone would not fully reveal the underlying causes and consequences of behaviors that increase risks of NCDs, a qualitative socio-anthropological study would be useful to complement the quantitative epidemiological study. We have conducted such qualitative studies in China,<sup>7</sup> Bangladesh,<sup>8</sup> and Ethiopia<sup>9</sup> and explored how people had experienced lifestyle changes and nutritional transitions during the rapid socio-economic development. Thus, we designed our NCD study in Palau to include three major components: (1) epidemiological surveys that provide valid figures of the prevalence of various NCD risk factors<sup>4,5</sup>; (2) a qualitative study to explore socio-cultural matters that might affect attitude and behavior of Palauan people in relation to NCDs; and (3) a pilot health education intervention based on the findings of the epidemiological and qualitative studies.<sup>10</sup> This article aims to describe the findings of the qualitative study in Palau, which explored perception and behavior of Palauan people in relation to NCDs in the context of the changing lifestyle along with the socio-economic development process.

## METHODS

This study was conducted between September and October, 2013, targeting native Palauan people living in Koror and Ngarchelong. Koror is the commercial capital of Palau where over 70% of the population resides. Most of the residents in Koror work in government offices, shops, and hotels. Ngarchelong is a rural area located in the northernmost part of Babeldaob, the largest island in Palau. Residents of the area often commute to urban areas for work in city offices and shops, while also growing crops in their gardens.

As described above, this study was an integral part of a comprehensive study on NCDs in Palau composed of three major components, including quantitative epidemiological surveys. This study employed a qualitative approach to explore perception of Palauan people in relation to NCDs and to interpret their behavior from the perspective of their socio-cultural value in the context of the socio-economic development process. We prepared a topic guide shown in Table 1 to explore the following research questions: (1) what practice do Palauan people perceive to be good or bad for health; (2) how do they perceive their traditional knowledge and practice;

(3) how do they perceive their practice in family and community lives; and (4) what ideas do they have for improving health?

**Table 1** Topic guide for the key informant interviews and focus group discussions

Topics	Questions
1 Perceived good practice for health	What do you practice that you think good for your health?
2 Perceived bad practice for health	What do you practice that you think bad for your health?
3 Traditional knowledge and practice perceived good for health	What traditional knowledge and practice in Palau do you know that contribute to good health?
4 Perceived relations of health with the practice in family and community lives	What is the practice relating to family life and community life in Palau that affects health of the Palauan people positively or negatively?
5 Ideas to improve health	What are your ideas/strategies for improving health or reducing noncommunicable diseases?

Based on stratification by two areas (urban and rural) and four age groups (18–30, 31–45, 46–60, and over 60 years), we purposively selected three men and a woman from the urban area, and a man and three women from the rural area as key informants who were supposed to know people's perspectives and lifestyle well. As shown in Table 2, school teachers, a policeman, a physician, and hospital staff members were included. We conducted in-depth interviews with each key informant and in total eight key informant interviews (KII) were completed. Then we purposively selected participants from the different age groups both in the urban and rural areas for group interviews. Each group consisted of three to five participants, and in total eight focus group discussions (FGD) were conducted. Well-trained Palauan researchers who had sufficient experience in qualitative research conducted KIIs and facilitated FGDs in local Palauan language. Each interview and discussion lasted about one to three hours.

**Table 2** Characteristics of key informants

Residential area	Age (years)	Sex	Profession
Urban	26	Woman	Hospital staff
	38	Man	Policeman
	53	Man	Groundskeeper
	82	Man	Physician
Rural	28	Woman	School teacher
	43	Woman	School teacher
	52	Man	Public employee
	84	Woman	Retired hospital staff

All interviews and discussions were audio-recorded, transcribed word-for-word, and then translated into English. The initial round of line-by-line open-coding to extract participants' ideas was conducted by two researchers, using NVivo 12 (QSR International, Australia). Then, the emerged codes were discussed among the researchers until they were agreed upon by all members. We applied qualitative content analysis,<sup>11</sup> ie an inductive multistage approach to analyze

the text data qualitatively within a theoretical postpositivist paradigm.<sup>12</sup> The codes were grouped into sub-categories and then categories based on their similarities and differences. Then categories were similarly grouped until themes emerged inductively.

This study was reviewed and approved by the Bioethics Review Committee of Nagoya University School of Medicine, Japan (approval no. 2012-0103), and the Institutional Review Boards of the Ministry of Health and the Ministry of Community and Cultural Affairs, Republic of Palau. All participants were briefed about the study and provided their written informed consent.

**Table 3** Content analysis group organization: themes, categories, and codes

Theme	Category	Code
Home education	Mutual influence among family members	<ul style="list-style-type: none"> <li>- Parents have passed on their unhealthy lifestyle to their children.</li> <li>- My family loves me and hopes that I adopt a healthy lifestyle.</li> </ul>
	Importance of health education for children	<ul style="list-style-type: none"> <li>- Childhood dietary habits and lifestyle have a huge impact.</li> <li>- Efforts to improve lifestyle must start from childhood.</li> </ul>
	Child abuse prevention law	<ul style="list-style-type: none"> <li>- The child abuse prevention law made it illegal for adults to use force to discipline their children.</li> <li>- Physical and verbal abuse cause serious pain to children, so the child abuse prevention law is a positive step.</li> </ul>
Traditional local community	Traditional lifestyle as healthy	<ul style="list-style-type: none"> <li>- Local Palauan foods are healthy.</li> <li>- In the past, daily life was regarded as healthy because it involved a lot of physical activity.</li> </ul>
	Weakened leadership in the community	<ul style="list-style-type: none"> <li>- In the past, Chiefs played a governing role.</li> <li>- Traditional leaders have lost their power and leadership role.</li> </ul>
	Close ties with the community	<ul style="list-style-type: none"> <li>- It is customary for hosts to serve large amounts of food to guests who then feel obligated to finish it.</li> <li>- Palau is a small island so people know each other.</li> </ul>
Modernization and westernization of lifestyle	Balanced diet	<ul style="list-style-type: none"> <li>- A diet consisting of fish, vegetables and potatoes is considered healthy and balanced.</li> <li>- Pork is high in fat, but not necessarily unhealthy if eaten in small amounts.</li> </ul>
	Difficulty for changing dietary habits	<ul style="list-style-type: none"> <li>- People know the benefits of adopting a healthy lifestyle, but they are reluctant to change.</li> <li>- Exercising is easier than changing dietary habits.</li> </ul>
	Loss of traditional values	<ul style="list-style-type: none"> <li>- In the past, people were poor but they led a simple life relying on each other for assistance.</li> <li>- With today's affluent and convenient lifestyle, it seems like we are confused and have lost a part of our identity.</li> </ul>
	Abuse of alcohol, tobacco, etc.	<ul style="list-style-type: none"> <li>- Dependence on alcohol and tobacco is detrimental to health.</li> <li>- Many people chew betel nuts, a habit linked to cancers.</li> </ul>
	Stressful daily life	<ul style="list-style-type: none"> <li>- Stress has an impact on lifestyle.</li> </ul>

	- Life is very difficult; I must work hard to support my family.
Peer health promotion activities	- Our community must understand the NCD problem and work together to make positive changes. - Educating teachers and parents at schools on NCD prevention is an effective strategy.

## RESULTS

Table 3 shows the codes, 12 categories, and three themes emerged inductively through the qualitative analysis. The three emerged themes were: (1) home education, (2) traditional local community, and (3) modernization and westernization of lifestyle.

### *(1) Home education*

#### *Mutual influence among family members*

Close family members influenced lifestyle of other family members. For example, the lifestyle of children was strongly influenced by that of their parents. Participants believed that they would be able to change their bad lifestyle if close family members supported them.

*“Since my mom had no self-discipline, I never had any either, and I therefore raised my son not to have any. When it comes to eating, for instance, I have very large servings and my child does the same; it is difficult for me to control.”*

*(FGD, rural female aged 31–45 years)*

*“When I quit smoking, I found that my family really loved and cared about me because they were extremely happy that I quit this bad habit.”*

*(KII, urban male groundskeeper)*

#### *Importance of health education for childrens*

Providing children with a good education at home was believed to be essential, since it would be difficult to change their lifestyle after growing up. However, the participants felt that nowadays they were unable to discipline their children, as most mothers worked outside and were too busy to spend sufficient time with their children. They thought health education in schools was needed, but regretted that children were unable to learn about nutrition through the school lunch program run with a minimal budget.

*“To build a healthy community, the priority must be on educating children.”*

*(FGD, urban female aged 46–60 years)*

*“My eating habits now are same as those when I was a kid.”*

*(FGD, urban male aged 18–30 years)*

*“Sometimes children eat only hot dogs and rice with ketchup for lunch at school.”*

*(FGD, urban male aged 31–45 years)*

#### *Child abuse prevention law*

They felt that the recent adoption of the child abuse prevention law made it difficult to discipline children at home.

*“If you scold or spank your child for misbehaving, you are now violating the child abuse prevention law.”*

*(FGD, rural male aged 31–45 years)*

## *(2) Traditional local community*

### *Traditional lifestyle as healthy*

Traditional Palauan lifestyle, ie fathers went fishing, mothers grew crops in the garden, and children played outside and helped their parents, was regarded as healthy. Participants thought that people of past generations led healthier lifestyle and enjoyed longer lives than those of the present generation.

*“Past generations were physically active; they exercised regularly and sufficiently when cultivating their crops (taro, tapioca, sweet potato) or fishing ....”*

*(FGD, rural male aged 46–60 years)*

*“(as a child), I went fishing with my father; I helped my mother with the taro patch; in the past, children could help with most of the activities of their parents.”*

*(FGD, urban male aged over 60 years)*

*“In the past, men in our village lived very long and remained healthy.”*

*(FGD, urban male aged over 60 years)*

### *Weakened leadership in the community*

They felt that they were losing traditional values and community networks in their modern lives, and the authority of community leaders had weakened. They thought that nowadays it was a challenge to guide and discipline young community members due to the weakened leadership in the community.

*“Chiefs have lost their power. They are now less powerful than the government.”*

*(FGD, rural male aged 31–45 years)*

### *Close ties with the community*

Palauan people customarily gather around the table with abundant foods for entertaining guests such as friends, neighbors, and relatives; or for holding family or community events such as funerals. In the past, large multi-generational families were the norm. Family and community members commonly worked together for fishing, constructing community roads, organizing funerals, and building houses for the benefit of the entire community.

*“We don’t greet people saying, ‘How are you?’, we say ‘Come in and eat.’ I think that traditionally we have been concerned about not letting people go hungry.”*

*(FGD, urban female aged over 60 years)*

*“In the past, elderly people helped us a lot. In large families, we could rely on grandparents and uncles.”*

*(FGD, urban female aged 46–60 years)*

*(3) Modernization and westernization of lifestyle**Balanced diet*

They viewed traditional foods as healthy. They were sorry that they could no longer serve the healthy traditional meals to their children due to lack of time.

*“When I eat traditional foods, I can usually control my appetite.”*

*(FGD, rural male aged 46–60 years)*

*“My children are now unable to eat local staple foods such as taro, tapioca and fresh fish even though this is what I grew up on.”*

*(FGD, rural female aged over 60 years)*

*“We feel like we are deceiving our family because we preach healthy eating based on the (nutrition) pyramid but don’t have time to prepare such nutritional meals.”*

*(KII, rural female teacher)*

*Difficulty for changing dietary habits*

They were reluctant to change their dietary habits. They felt it was more difficult to change their dietary habits than to change other unhealthy habits such as physical inactivity.

*“I know that overeating is not healthy, but it has become an inveterate habit of me.”*

*(FGD, rural male aged 46–60 years)*

*“I decided to start exercising and ended up loving it, but I didn’t change my dietary habits.”*

*(FGD, urban male aged 18–30 years)*

*Loss of traditional values*

They felt that today’s modernized lifestyle had weakened community networks, thus traditional values were lost. Due to the decreased support from community members, their daily life had become much more stressful than that of the previous generation. They were busy working outside and had little time to dedicate to housework and children’s education; moreover, they could not expect support from community members any longer.

*“Large families are no longer common, and it has therefore become difficult to get support from family and community members.”*

*(FGD, urban female aged 46–60 years)*

*“I think that in the past we didn’t want much. We were satisfied with what we had and what we knew.”*

*(FGD, urban male aged over 60 years)*

*“I feel that we don’t know how to revive our roots and return to a more balanced lifestyle.”*

*(FGD, rural female aged over 60 years)*

*“We have to process too much information. This causes a lot of confusion.”*

*(FGD, rural male aged 31–45 years)*

*Abuse of alcohol, tobacco, etc.*

Abuse of alcohol, tobacco, betel nuts, and illegal drug is quite common in Palau. Although

people knew that these substances were bad for their health, they were unable to stop using them.

*“I use some of the money set aside for rice to buy alcoholic drinks. I like drinking, but my behavior is threatening health of my children and my family.”*

*(KII, urban male policeman)*

*“My mother died due to complications of smoking cigarettes. But I still smoke every day. And I cannot stop.”*

*(FGD, urban male aged 31–45years)*

*“I have been chewing betel nuts ever since I can remember (maybe from 5 or 6 years of age); I used to help my grandmother by softening her betel nuts before chewing.”*

*(FGD, urban female aged 18–30 years)*

#### *Stressful daily life*

Although they wished to improve their lifestyle, they found it difficult to make changes due to their stressful daily life. To alleviate stress, they ate large amounts of junk food, which was much cheaper than fresh vegetables and fish. They felt that healthy foods were unaffordable.

*“My job is very stressful. That’s why I eat so much.”*

*(FGD, urban female aged 18–30 years)*

*“We only eat junk food. We cannot afford healthy foods. Fish is now very expensive.”*

*(FGD, urban female aged 46–60 years)*

#### *Peer health promotion activities*

They pointed out that health education programs would be more effective if they were provided by peer community members, because peers knew the local situation very well and could communicate effectively.

*“As parents, we should share tips (of health promotion) between us.”*

*(FGD, rural female aged 46–60 years)*

*“I think it would be better to start from the bottom (community) to the top (government), instead of working from the top to the bottom.”*

*(FGD, rural male aged 31–45 years)*

## DISCUSSION

This is the first qualitative study that explored perception and behavior of Palauan people in relation to NCDs in the current social environment. We found that Palauan people appreciated their traditional lifestyle and strong ties with family and community members. Therefore, they preserved even unhealthy traditional lifestyle, such as serving and eating too much food or not quitting tobacco because of the invisible psychological pressure from their peers.<sup>13,14</sup> Meanwhile they adopted convenient modern lifestyle, such as having ready-made food containing lots of salt and dietary energy or using cars and motorboats instead of walking and rowing. Both of them seemed to contribute to the increase of NCDs in Palau. In addition, they felt that it became



difficult to discipline community people because of the weakening authority of community leaders. This suggests that social systems and traditional wisdom have not caught up with the rapidly changing lifestyle in Palau.

Palauan people have experienced significant changes in their communities and families. Traditional large families were mostly replaced by nuclear families. Although the whole community used to be involved in raising children in the past, the entire responsibility of child raising falls on individual families in the modern urban society. Most women are working outside home, while continuing to bear traditional household roles. They considered traditional food such as taro and fish was much healthier than the ready-made processed food, but working mothers were too busy to prepare such food for their family and opted to serve greasy and salty processed foods.<sup>15</sup> Similar findings were reported in urban communities in Bangladesh,<sup>8</sup> where women worked in factories while keeping traditional household roles.

Palauan people perceived their traditional lifestyle as healthy, because they ate traditional food and involved in intensive physical labor. They thought that the current modernized lifestyle caused the increase of NCDs.<sup>15-17</sup> They felt their modern life rather stressful<sup>18,19</sup> and often talked about the life in the old days with nostalgia, although they generally enjoyed the convenience of the modern life. It would be important to take account of the traditional value and custom in Palau for planning health promotion activities<sup>20</sup>; however, such activities need to be adapted to the current modernized lifestyle but not simply be returned to the old one requiring physically demanding and time-consuming work. It would be difficult for individuals to quit unhealthy traditional custom such as overeating and using tobacco,<sup>7,8,13,14</sup> thus community-wide campaigns are likely to be required, utilizing existing community networks as an important social capital.<sup>21</sup>

Palauan people were losing self-efficacy in their busy modernized life. Self-efficacy refers to the belief in one's capabilities to reach desired goals through one's actions.<sup>22,23</sup> They had given up on changing their lifestyle because of a huge gap between the ideal lifestyle and the real one. They perceived that they had no time to grow vegetables or to go fishing, but could not afford to buy expensive healthy foods. Thus, they had no other choice but to eat cheap processed foods. It would be important to recover self-efficacy of Palauan people for changing their unhealthy behavior; nevertheless, they had a certain level of knowledge of NCD prevention. Health promotion interventions should be planned to empower people<sup>24,25</sup> with step-by-step approaches.<sup>10</sup> A peer education approach might be useful to reinforce self-efficacy<sup>26</sup> given that peers serve as role models by setting attainable goals; by the same token, the peers themselves would increase their own self-efficacy by teaching others.

Most Palauan people thought that educating children was vital in preventing NCDs<sup>27,28</sup>; however, they felt it difficult to discipline children in each nuclear family. Schools have not yet fully played their roles of health education, as shown in the free but nutritionally deficient school meals. The role of schools and community networks should be enhanced,<sup>29,30</sup> and it was also needed to develop a new mechanism to teach children about the importance of balanced diets and physical activity.<sup>31</sup> For example, local non-governmental organizations (NGOs) would be able to support parents and families, facilitate community activities, and reinforce the weakened community networks.<sup>32</sup>

The strength of this study is that it was conducted both in urban and rural areas using local language by researchers familiar with the local culture. This study was part of a comprehensive study on NCDs in Palau, including quantitative epidemiological studies, therefore the findings of this study would lead to better understandings of risks of NCDs in Palau. However, this study had several limitations. First, we analyzed text data in English translated from Palauan language, so delicate linguistic nuances might have been lost. Since English is widely used in Palau and interviewers were fluent in both English and Palauan, we believe the loss was minimal. Second,

due to time and budget constraints, we were unable to conduct interviews and discussions until data saturation. We tried to triangulate the data by comparing and contrasting key data across other sources, including KIIs, FGDs, and observations gathered by experienced data collectors. Third, our results may have been affected by a social desirability bias because the participants knew the aim of our study.

## CONCLUSION

This study examined the perception and behavior of Palauan people in relation to NCDs in the rapidly changing society. Health promotion measures in Palau need to take account of the various social aspects and constraints identified by this study. While paying respect to traditional values, a new social system needs to be developed in collaboration with the government, NGOs and other stakeholders to improve the lifestyle of Palauan people.

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## CONFLICT OF INTEREST

The authors have declared that no competing interests exist.

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