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Personal Hygiene and Sanitary Practices among the School Girls in Dhangadhi, Sudurpashchim Province, Nepal

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Authors' contributions

This work was carried out in collaboration among all authors. Author DRJ designed the study, supervise it, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors SKJ and NA lead all the authors during data collection, arranged it and involved in overall processes. Authors SKJ, DKJ, SJ, KC and TJ actively involved in data collection process. Author RB involved in literature review. All authors read and approved the final manuscript.

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ABSTRACT

The inadequate knowledge of personal hygiene and sanitation is directly correlated with the health of an individual, a family, a community, a nation, and the globe as a whole. To know the knowledge, attitude, and practices (KAP) of personal hygiene and sanitation among the girl students in Dhangadhi, Nepal; this study was conducted in four different schools and a total of 238 girl students were selected specifically from the grade 5 to 10 following their age range from 11 to 18 years and the data was collected by filling the questionnaires. The average age of menarche is 12-13 years, mother is the major source of information about menstruation (53.8%) followed by sisters (35.3%). Only 20% use commercial sanitary pads and the majority of them use both, i.e.

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commercial pad as well as old clothes (65.5%), majority of the participants change absorbent 3 times a day (53.6%). 99.2% have their own toilets, 100% use soap water to clean hands, only 64.7% do brushing once a day, 14.3% have oral diseases and 67.6% do not know about oral diseases while 92% have never visited the dentist. Only 16.8% bath every day, 96.2% use nail cutter, 53.8% of the participants cut nail once a week followed by 42% occasionally. Only 21.4% have access to safe drinking water and 78.6% are relying on hand-pump water. Overall, the knowledge about personal hygiene and sanitation is average, but the attitude and practice towards it need to be improved.

Keywords: Personal hygiene; sanitation; menstruation; hand washing practices; brushing teeth; waste management.

ABBREVIATION

KAP: knowledge, attitude, and practice.

1. INTRODUCTION

A good impression of a society is its sanitation state, and it is reflected from the hygiene behavior among individuals. Personal hygiene and sanitation are predator of the developed and cultured societies. Sometimes, low income correlates with inadequate sanitation which is a mirror of the society where we grow. To be healthy, the major factors which affect directly are the increase in the level of hygiene and sanitation. When an individual and the entire community have good hygiene, they have a less chance of being sick which ultimately prevents the society from communicable diseases, but when the community is dirty, there will be the possibility of spreading various microorganisms, mosquitoes, house fly, and many more which will correlate with a disease like diarrhea, malaria/ dengue, typhoid respectively [1-3] The basic sanitation behavior includes proper personal hygiene, the use of proper latrine, cleaning the house, personal clothes and the surrounding where we live, safe disposal of wastes, removing dirty water reservoir, safe kitchen, and cooking practice, and many others [2,4]. Among these all practices, the toilet is considered as the focused point in sanitation because it has a direct effect on personal health as well as the whole society's sanitation conditions [5,6]. And if not safe it can transmit, cause many diseases, and infections [7]. Every minute, 3 children are dying due to poor hygiene and sanitation worldwide. The majority of the health problems (around 80%) of the poor and developing countries are directly related to poor sanitation, unsafe drinking water, and unsatisfactory hygiene conditions [8]. The management of menstrual hygiene is still an issue in the poor and developing countries which is one of the main causes of girls being absent in class [6,9-12]. The sanitation and education has deep relation [13] so, a proper sanitation is most demanding in developing countries.

As our ongoing effort to understand the current social condition, previously we performed a study on the effect of health insurance programs in social security in the Kailali district [14], and detergent use practices in Nepal [15]. Personal hygiene and sanitation are very important for an individual and to the entire society as a whole. Although, there are several studies about personal hygiene and sanitation, the up-to-date situational study, and the area where this study was conducted is being done for the very first time. So, this research focused to know the personal hygiene and sanitation's knowledge, attitude, and practice among the schoolgirl's ages ranging from 11 to 18.

2. METHODS

This study was conducted in four different schools of Dhangadhi, Kailali, Sudurpaschim Province, Nepal (*Shree Dhangadhi Namuna Prabhidik Higher Secondary School, Shree Sharada Secondary School, Shree Rastriya Secondary School, and Shree Siddhanath Secondary School*). These schools are located at 5-10 Km distance to each other. There is a little diversity in ethnicity, culture, and social level, which is included in Table 1. A total of 238 girl participants were selected from grade 5 to 10 following their age range 11 to 18 years old. Then, a questionnaire was given, and they filled it by themselves. The data collection was conducted from August 10 to November 15, 2019.

2.1 Participant's Selection and Size

From four different schools the age group of 11 to 18 years old girls (Fig. 1) were selected in different numbers to different schools (Fig. 2.).

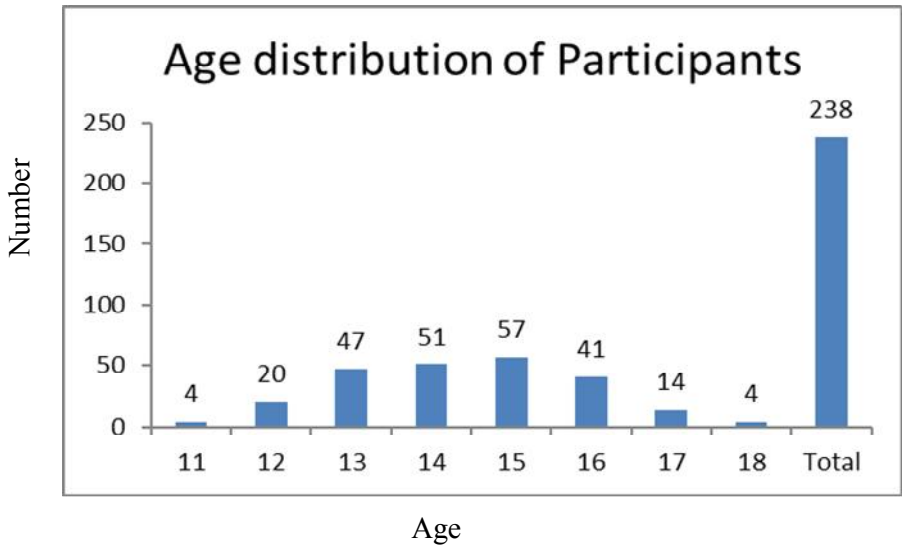

Fig. 1. The age distribution of participants

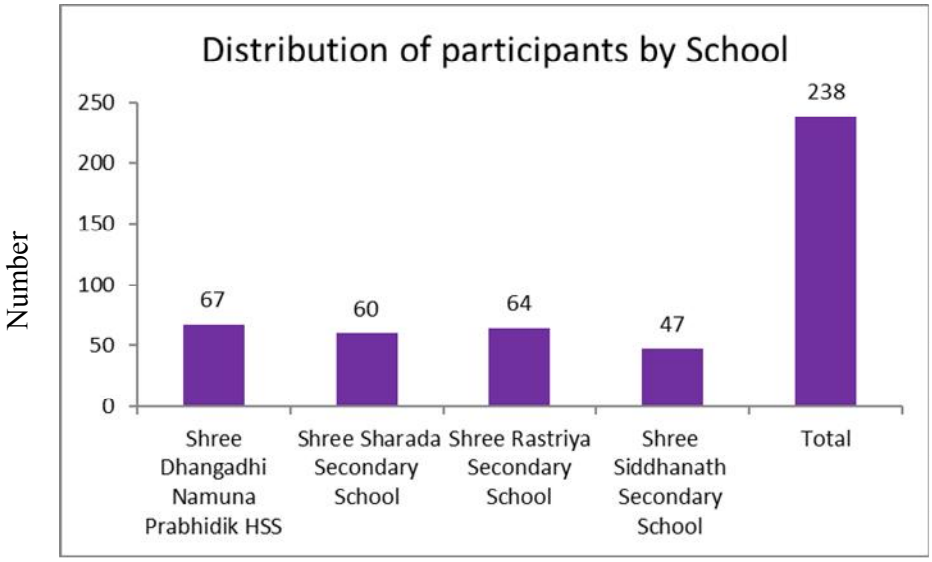

Fig. 2. The distribution of participants by different schools.

2.2 Data Collection and Analysis

The questionnaires were given to each participant and they filled it by themselves. In case of any confusion, our data collection team explained the question without affecting the participant's judgments. Then, the collected raw data was entered in MS-excel and analyzed. The pdf version of the questionnaire is available as supplementary information. (Named as: “a study on personal hygiene and sanitary practices in schools of rural village of kailali district of Nepal”.) This is translated version of the original file that was in Nepali language.

3. RESULTS

A total of 238 participants participated in this research from four different schools (Fig. 2) from a different location in Dhangadhi city. The participant's age is from 11 to 18 years old (Fig.

1). The participants are studying in different grades from class 5 to class 10 (Fig. 3). The demographic distribution of the participants is shown in Table 1, where most of them live in a joint family (70.6%); 100% own their land and house; 99.2% have their own toilets; 100% use soap water to wash their hands; 55.9% of participant's family occupation is agriculture, 25.2% have a business, 10.5% do labor work, and only 8.4% has acquired governmental job. Regarding ethnicity, 6.3% are Dalit, 37.4% are Janajati, and among the total participants, 98.3% are following the Hindu religion.

Among a total of 238 participants, only 220 girls have experienced menstruation and their average age at menarche is 12-13 years old (61.3%), only 1.68% of menarche age is 10 years old (Fig. 4). The menarche age and the perceived age of menarche are almost correlated, whereas, 76.0% of participants perceived the age of menarche at 11 to 13 years old (Fig. 5).

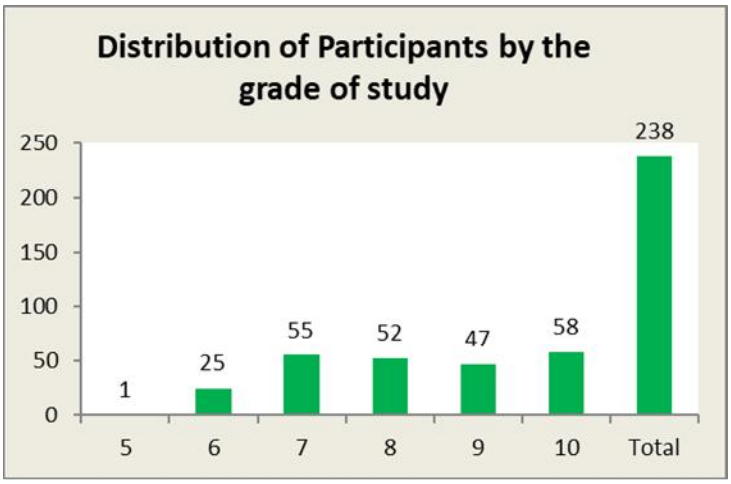

Fig. 3. Distribution of participants by the grade of study

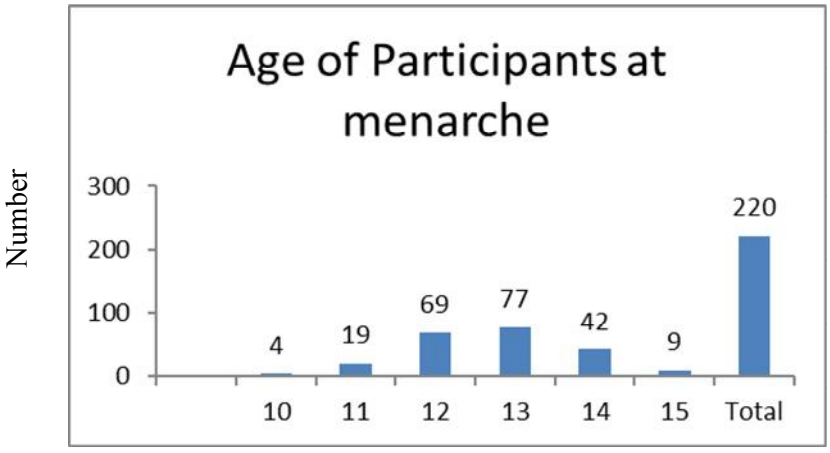

Fig. 4. Participant's age at menarche

According to our findings the mother is the major source for their first information about menstruation (53.8%), only 1.7% received information from health workers and the other major sources are friends and teachers (Fig. 6). The occurrence of menstruation for the very first time was mostly shared with their mother (52.1%), with sisters (35.3%), and only 5% shared with other relatives (Fig. 7). Of the total 220 menstruation experienced participants, 20% used commercial sanitary pad, 14.5% used clothes and 65.5% used both. During menarche, 38.6% were confused about what happened, 61.4% were frightened, and none of the participants thinks menarche is normal or expected. The absorbent changing ratio is also different, only 10.4% changed once a day, 35.9% changed twice a day and most of the participants changed more than 3 times a day (53.6%). The majority of the participants (97%) agreed that the rest, balanced diet, and not to do heavy work, etc. are important during menstruation (Table 2). The multiple responses regarding the traditional practices, perception, knowledge about the menstruation understanding, diet, exercise, etc. are shown in Table 3, which shows that a lot of better understanding and perception towards menstruation and the overall management is needed.

Regarding the knowledge, attitude, and practice (KAP) of participants about oral hygiene is as follows (Table 4). Among the participants, 90.7% agree on the need for regular brushing but the remaining (9.3%) do not realize the compulsory need for brushing. 64.7% used to brush once a day, 33.6% brush in the two-day interval, and 1.26% used to brush only twice a week. None of them are brushing teeth twice a day, so proper knowledge on it is required. Among the participants, brushing after a meal is 84.9% (it means they took lunch, brush their teeth, and go to school) and 15.1% used to brush before the meal (wakeup in the morning, and brush their teeth). Among the participants, 14.3% have oral diseases and most of them (67.6%) do not know about oral diseases, and from this data, we can be aware that a serious condition is prevailing among these students. For them, visiting a dentist is only when they have dental pain (8%), and 92% have never visited a dentist but 77.3% agree that regular visit to the dentist is necessary (Table 4), which shows the huge gap between knowledge and practice.

Regarding the other personal hygiene and sanitary practices, the participant's response is in Table 5. Washing the hands after defecation with soap water is done by everyone (100%). Daily bathing is done only by 16.8% and mostly took bath in an alternate day i.e., 55.9%. In the nail cutting practice, 96.2% use nail cutter, and 2.5% use their mouth to cut their nail, and 53.8% of the participants cut nail once a week, and 42% occasionally, remaining (4.2%) cut nail in every two days, and among them, only 1.26% have nail disease (Table 5).

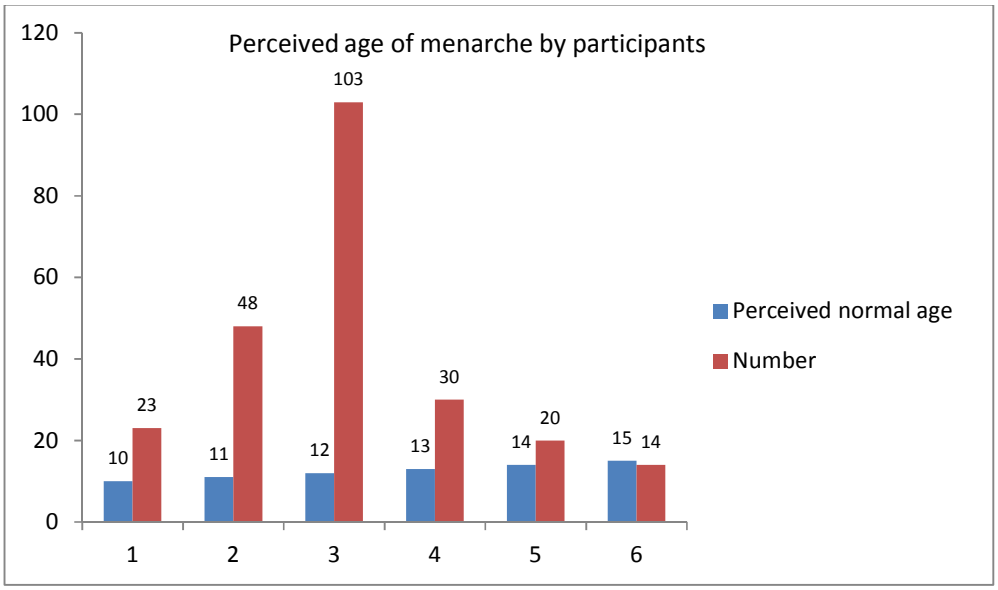

Fig. 5. Perceived age of menarche by participants

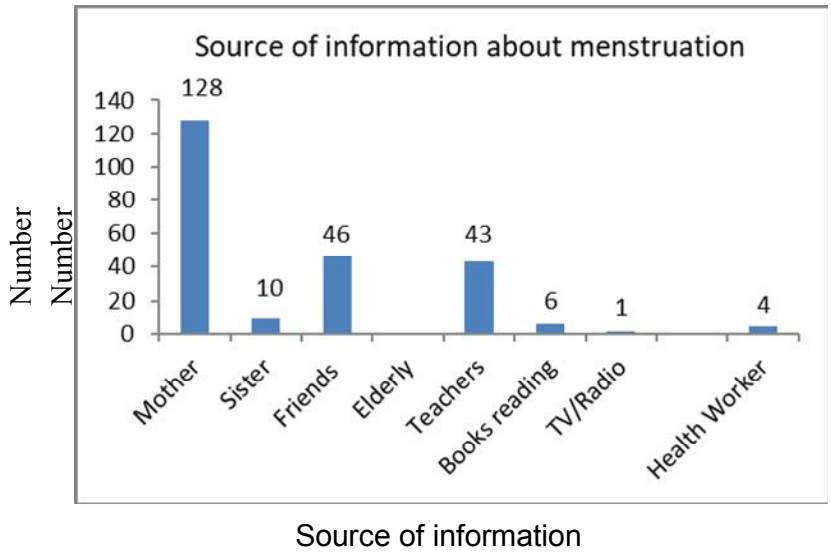

Fig. 6. Source of knowledge about menstruation

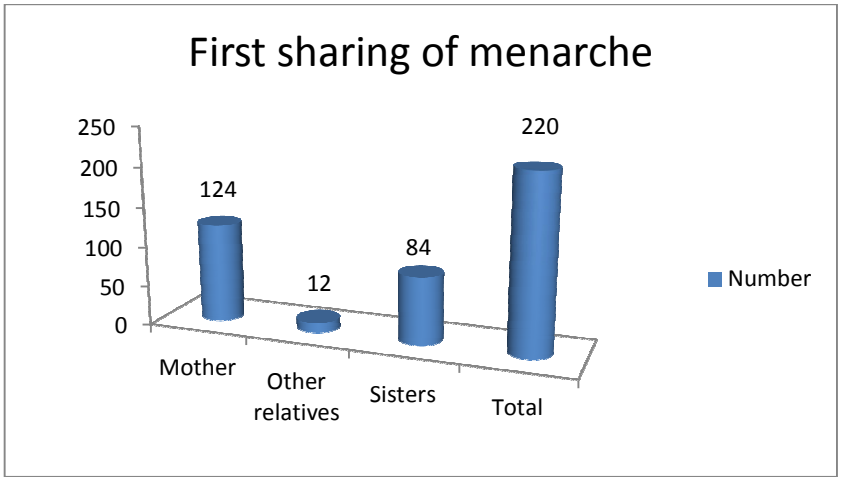

Fig. 7. First Sharing of Menarche by participants.

The everyday compound cleaning is done by 96.6% but 2.5% are disposing of the waste to the riverbank. Wastewater management is also not satisfactory. Only 21.4% have access to safe drinking water while 78.6% are still relying on hand-pump water. Only 7.1% drink water by filtering, 18.1% by boiling, and 74.8% use water directly from the source (Table 6).

4. DISCUSSION

This study assessed the overall personal hygiene and sanitary practices among the schoolgirls in Dhangadhi, Nepal. This is a small-scale study (total of 238 participants) and limited to girls only; to know the situation of KAP towards personal hygiene and sanitation. As the result discussed above, more knowledge about it is required and the attitude and practice towards it is a core. As the economic profile and family condition are determining factors to adapt proper sanitation and hygiene [16]. Menstrual hygiene is still a neglected issue in South Asia, regarding its proper adaptability for WASH (water, sanitation, and hygiene) [17]. In the past decade, there is a huge shift in awareness regarding menstruation

but still, have to do more, to aware women. The knowledge is increasing but the attitude and practices are still not adapted properly by large communities in South Asia [18]; which is also expressed in this research as well. The proper use of absorbent is very crucial in the management of menstrual flow and personal hygiene. Unhygienic practices may lead to several health problems [19] So, detailed knowledge regarding the menarche, and menstruation is still demanding [20]. In this study, most of the participants are still using old clothes during menstruation. Everyone may have a different amount of menstrual flow,

Table 1. Demography of participants

SN	Description	Number (%)	SN	Description	Number (%)
1	Family type		7	Toilet	
	Joint	168 (70.6%)		Own	236 (99.2%)
	Nuclear	70 (29.4%)		Community	2 (0.8%)
2	Family land status			Open defecation	-
	Have own land	238 (100%)	8	Hand Washing practice	
	No land	-		Soap water	238 (100%)
3	House			Sometimes ash/soil water	-
	Own house	238 (100%)		Water only	-
	Rent	-	9	Family occupation	
4	Knowledge of sanitation			Agriculture	133 (55.9%)
	Yes	238 (100%)		Business	60 (25.2%)
	No	-		Labor	25 (10.5%)
5	Sanitary condition			Government	20 (8.4%)
	Average	238 (100%)	10	Ethnicity	
				Chhetri	91 (38.2%)
6	Religion			Janajati	89 (37.4%)
	Hindu	234 (98.3%)		Brahmin	22 (9.2%)
	Buddhist	1 (0.42%)		Thakuri	21 (8.8%)
	Christian	1 (0.42%)		Dalit	15 (6.3%)
	Other	2 (0.84%)			

Table 2. Participant's response towards menstruation

SN	Description	Number (%)	SN	Description	Number (%)
1	Absorbent used during menstruation (n=220)		5	Attitude towards menstruation (n=238)	
	Sanitary Pad	44 (20.0%)		Undesirable	36 (15.1%)
	Cloth	32 (14.5%)		Needed	64 (26.9%)
	Both	144 (65.5%)		Satisfactory	138 (58.0%)
2	Experience at Menarche (n=220)		6	Menstrual pain remedial adopted (n=220)	
	Confused	85 (38.6%)		Yes used	48 (21.8%)
	Expected	0		No/ tolerated	172 (78.2%)
	Frightened	135 (61.4%)	7	Methods of disposal of absorbents after use	
3	Number of absorbents changed in a day			Burn clothes and pad	67 (28.1%)
	Once	23 (10.4%)		Wash and dry in sun and reuse	103 (43.3%)
	Twice	79 (35.9%)		Dispose of cloths or pad in a pit or throw somewhere	68 (28.6%)
	≥3 times	118 (53.6%)	8	Need for rest, balanced diet, and no heavy work	
4	Perception of traditional practices during menstruation (n=238)			Yes	231 (97.0%)
	It is bad	51 (21.4%)		No	7 (3.0%)
	Want to change	124 (52.1%)			
	It is Good	20 (8.4%)			
	Ok/ nothing	43 (18.1%)			

Table 3. Single to multiple responses regarding menstruation: knowledge, traditional perception/practices, and diet/rest/exercise, etc.

SN	Description	Number (%)
1	Knowledge regarding menstruation	
	A monthly cycle where blood flows from the vagina for 4-5 days in every female, monthly flow of dirty blood from uterus or vagina, a natural process occurring in every adolescent female, a sign of maturity, flow of blood from urethra	79 (33.2%)
	A natural process occurring in every adolescent female, a sign of maturity	67 (28.1%)
	A monthly cycle where blood flows from the vagina for 4-5 days in every female	36 (15.1%)
	A natural process occurring in every adolescent female	17(7.1%)
	A monthly cycle where blood flows from the vagina for 4-5 days in every female, a natural process occurring in every adolescent female	9 (3.8%)
	A monthly cycle where blood flows from the vagina for 4-5 days in every female, monthly flow of dirty blood from uterus or vagina, a sign of maturity	10 (4.2%)
	Monthly flow of dirty blood from uterus or vagina	5 (2.1%)
	A sign of maturity	5 (2.1%)
	Do not know	22 (9.2%)
2	Traditional perception and practices during menstruation	
	Not allowed to go to the temple and cannot participate in religious activities	50(21%)
	Not allowed to go to the temple and cannot participate in religious activities, not allowed to cook/touch utensils, not allowed to stay/ go in other's house and use older clothes at the time of menstruation, take a bath at least one day after 4 days of menstruation	148 (62.2%)
	Do not follow such rituals at all	40 (16.8%)
3	Perception regarding diet, exercise, and rest during menstruation	
	Drink lots of water/eat fruits / exercise /take rest	86 (36.1%)
	Eat fruits/ take rest	23 (9.7%)
	Take rest	22(9.2%)
	Drink lots of water/eat fruits	16(6.7%)
	Eat fruits	10(4.2%)
	Drink lots of water/eat fruits/ exercise	9 (3.8%)
	Eat Fruits / exercise /take rest	8 (3.4%)
	Drink lots of water	7 (2.9%)
	Drink lots of water/ take rest	6 (2.5%)
	Do not know	51 (21.4%)

different degrees of pain are observed, some may have early or delayed menstruation cycle, and varied health conditions as well [21] So, the difference in the amount of menstrual flow will result in the difference of changing frequency of absorbent and this study also shows, the majority of them are changing absorbent 3 times a day.

As oral hygiene is a hot issue in the world, a huge amount of oral cancer cases are reporting every day [22]. So, many oral diseases can occur in case of lacking proper oral hygiene [23] This is a critical issue and it may lead to oral disease, pyorrhea, tooth decay, etc. [24]. In this study, found the irregularity in brushing by the participants and none of them brush twice a day so, it is a risk of getting oral diseases. In old-time using natural ash, coal, herbal plant's shoot, etc. were common agents to brush teeth but this study shows; all the participants are using commercially available toothpaste during brushing teeth. As the frequency of tooth brushing is correlated with cardiovascular diseases, and diabetes as well [25,26]. As oral diseases are global challenges [27]. The improper methods used to cut nail and subsequent infection may be the cause of nail related disease observed by participants [28].

Table 4. Oral hygiene: Knowledge, attitude, and practice

SN	Description	Number (%)	SN	Description	Number (%)
1	Need for brushing		5	Having oral disease	
	Yes	216 (90.7%)		Yes	34 (14.3%)
	No	22 (9.3%)		No	204 (85.7%)
2	The material used to brush		6	Knowledge of oral disease	
	Toothpaste	238 (100%)		Yes	77 (32.4%)
	Natural herbs	-		No	161 (67.6%)
	Finger	-	7	Visit a dentist	
	Ash	-		Every 6 month	-
	Wood burn coal	-		Every 12 month	-
	Other	-		Occasionally	-
3	Frequency of brushing teeth			Only when dental pain	19 (8.0%)
	Once a day	154 (64.7%)		Never visited	219 (92.0%)
	Twice a day	80 (33.6%)	8	The necessity of a regular dental visit	
	Two times a week	3 (1.26%)		Yes	184 (77.3%)
	Once a week	1 (0.42%)		No	-
4	Brushing habit			Do not know	54 (22.7%)
	After meal	202 (84.9%)			
	Before meal	36 (15.1%))			

Table 5. Other Personal hygiene practices

SN	Description	Number (%)	SN	Description	Number (%)
1	The material used for cleaning after defecation		5	Nail Cutting with	
	Water	238 (100%)		Own teeth	6 (2.5%)
	Leaves	-		Knife	1 (0.42%)
	Toilet paper/other	-		Old blades	2 (0.84%)
2	Washing hands after defecation			Nail cutter	229 (96.2%)
	Yes	238 (100%)		Other	-
	No	-	6	Frequency of nail cutting	
3	Things used to wash hands after defecation			Every 2 day	10 (4.2%)
	Water only	-		Every 3 day	-
	Water with soap	238 (100%)		Once a week	128 (53.8%)
	Water with ashes	-		Occasionally	100 (42.0%)
4	Frequency of bathing		7	Have nail disease	
	Daily	40 (16.8%)		Yes	3 (1.26%)
	Alternative day	133 (55.9%)		No	235 (98.7%)
	Weekly	46 (19.3%)	8	Use of nail polish	
	Occasionally	19 (8.0%)		Yes	205 (86.1%)
				No	33 (13.9%)

To be hygienic, sanitation behavior is very important [29]. Water and health have a deep relation and proper quality of water is required to be healthy. Every year, millions of people having disease and death reported due to unsafe drinking waters [30]. Only 21.4% of the total participants have access to safe drinking water so they look vulnerable to water-borne diseases. The impact of separate toilets for girls also studied earlier [31]. Most participants are aware of the need for proper personal hygiene, but the practice is lacking in some cases. Thus, a comprehensive knowledge is needed to change their attitude and practices as well via a deep and logical knowledge based on scientific finding so they will be convinced from their inner heart and adapt practically with strong commitments. This study has limitation in terms of sample size (only 238 participants), gender (only included girls), age group (only 11-18 years old) and other related things.

Table 6. Knowledge, Attitude, and Practices (KAP) regarding waste disposal

SN	Description	Number (%)	SN	Description	Number (%)
1	Frequency of compound cleaning		3	Place of disposing of wastewater	
	Daily	230 (96.6%)		Under the ground	137 (57.6%)
	Once a week	4 (1.7%)		In the gutter	67 (28.1%)
	Rarely	4 (1.7%)		In the river	34 (14.3%)
2	Place of disposing household refuse		4	Source of drinking water	
	Refuse	76 (31.9%)		Improved source	51 (21.4%)
	Under the ground	123 (51.7%)		Non-improved source/ Handpump	187 (78.6%)
	Garbage pit	33 (13.9%)	5	Purification before taking water	
	Street	-		No, directly use from source	178 (74.8%)
	Riverbank	6 (2.5%)		Boiling	43 (18.1%)
				Filtering	17 (7.1%)

5. CONCLUSION

This study observed and analyzed the condition of sanitation and personal hygiene in four different schoolgirls in Dhangadhi city. The knowledge about sanitation and personal hygiene is average but the attitude and practice towards it have to be improved for better sanitation and hygienic behavior; and realized the lack of awareness of personal hygiene and its consequences. This obliviousness can get the right track if they are guided with knowledge and a demonstration is a must. The more diverse awareness programs and the other socioeconomic factors with their relation to the quality of living standards are currently under study and will be reported in due course.

AVAILABILITY OF DATA AND MATERIALS

Datasets are available through the corresponding author upon reasonable request.

CONSENT AND ETHICS APPROVAL

The approval for carrying out this research was obtained from the ethical review board of Health office Kailali, Health Directorate, Ministry of Social Development, Sudurpaschim Province, Nepal (Ref. No. 2076/77). Before visiting each school, permission was received from the principal of each school. After explaining the detailed research objective and procedure, the informed consent forms were completed and signed by each participant. In the case of children below 16; it is difficult to visit their parents so, the approval was received from their teachers. Participants were assured of the complete confidentiality of all their information. The principles of “no-harm,” in which the research should not be detrimental to the participant and “confidentiality” were followed. As per international standard or university standard, Participants’ written consent has been collected and preserved by the author(s).

SUPPLEMENTARY INFORMATION

The Pdf version of the questionnaire is found in supplementary link.
Available:http://journalarjass.com/index.php/ARJASS/libraryFiles/downloadPublic/9

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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