Awareness of Gestational Diabetes and its Risk Factors among Pregnant Women in Samoa

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Abstract

Gestational diabetes mellitus (GDM) is a subtype of diabetes mellitus defined as the development, or first recognition, of glucose intolerance during pregnancy. The risk of developing type 2 diabetes mellitus (T2DM) is greater in mothers with GDM compared to the general population. Preventing the development of GDM could help lower the prevalence of T2DM and long-term morbidity in children of affected mothers. The purpose of this study was to investigate the awareness of GDM and its risk factors among pregnant women in Samoa, exploring where participants obtained information, and understanding their attitudes towards diet and physical activity. A quantitative cross-sectional study of 141 women attending Tupua Tamasese Meaole (TTM) hospital in Apia, Samoa in May 2015 was performed. Fifty-eight percent women were aware diabetes can occur for the first time during pregnancy. The greatest information source was from doctors (37%, n=44) followed by family members (22%, n=28), based on 118 respondents. Only one woman correctly identified all four risk factors for GDM. Most women recognized eating a healthy diet (79%) and regular physical activity (78%) to be appropriate lifestyle changes to help prevent GDM. These findings suggest awareness of GDM among pregnant women in Samoa is mixed, with a very small proportion having good knowledge (based on the number of risk factors identified). We conclude that increased education about GDM is necessary, both in hospital clinics and within the community. By increasing awareness of GDM, it may be possible to decrease the prevalence of T2DM in Samoa.

Keywords

Diabetes, gestational, awareness, attitude, Samoa

Abbreviations:

FH = family history
PMH = past medical history
DM = diabetes mellitus
GDM = gestational diabetes mellitus
T2DM = type 2 diabetes mellitus
TTM = Tupua Tamasese Meaole

Introduction

Non-communicable diseases pose a large health threat to Samoa. The prevalence of diabetes mellitus (DM) in women is estimated to be 26.6%,[1] and 64.6% of Samoan women were found to be obese.[2] The World Health Organization attributes obesity and type 2 diabetes mellitus (T2DM), to a large extent, to high-level consumption of calorie-rich, nutrient-poor, imported food and a lack of physical exercise.[3] Gestational diabetes mellitus (GDM) is a subtype of DM and is defined as glucose intolerance with onset or first recognition during pregnancy.[4] It is associated with pre-eclampsia for the mother and a higher risk of birth injury, macrosomia, neonatal hypoglycaemia, respiratory distress syndrome, polycythaemia, jaundice, and hypocalcaemia in infants.[5,6] Long-term morbidity for children of affected mothers includes an increased risk of obesity, T2DM, metabolic and cardiovascular complications.[7] Furthermore, the risk for a mother with GDM of developing T2DM is 18.9%, nine years after delivery,[8] compared to 2% in non-GDM women.

The highest risk factors for GDM are high maternal age, family history of T2DM, being overweight prior to pregnancy,[9] excessive gestational weight gain, and a past history of GDM/glucose intolerance.[10] Diet and lifestyle can control glucose tolerance in GDM and have been associated with lower birth complications.[11] Determining awareness about GDM and its risk factors may lead to improved self-care and help its prevention. Identifying the source of patient knowledge helps understand where patients currently obtain most healthcare advice. In response to the alarming trends of obesity and its complications, the Samoan Ministry of Health made a goal of their Health and Nutrition Policy 2013 to "Promote healthy eating and lifestyles." Investigating patient awareness of diet and lifestyle is useful to help gauge the effectiveness of the Samoan Ministry of Health's campaign to promote healthy eating and lifestyles,[2] potentially identifying further areas to target. In particular, information on lifestyle practices can help doctors to tailor advice given to patients and determine whether those patients who are informed carry out healthy lifestyle practices.

There is no prior literature to assess the awareness of GDM in pregnant women in Samoa. Similar studies have been conducted in South India and Australia;[12,13] however these studies did not additionally investigate patients' attitudes towards diet and physical activity. Although a separate study investigating the attitudes towards physical activity in pregnancy in Samoan women was conducted in 2007, this was not in the context of GDM.[14] Therefore research on knowledge and attitudes about GDM among women in Samoa is required.

The aims of this study were to assess the current level of awareness of GDM and its risk factors among pregnant women in Samoa. The source of women's knowledge was investigated to understand how health promotion could be best targeted. Furthermore, attitudes towards healthy diet and regular physical activity, in relation to preventing GDM, were explored.

Method

A quantitative cross-sectional study of pregnant women attending antenatal clinics in Tupua Tamasese Meaole (TTM) hospital in Apia, Samoa was performed. TTM hospital has 200 beds[15] and is the main hospital in Samoa, serving a population of 193,483.[16] It is supported by eleven smaller district hospitals/health centres located on both islands which are staffed periodically

by a visiting doctor from TTM hospital. TTM hospital is the only location where antenatal clinics are held for all women in Samoa from both islands. These are conducted on Tuesday and Thursday mornings; a nurse-led clinic and doctor-led clinic run alongside each other. The World Health Organisation estimates that 93% of women in Samoa receive antenatal care at least once during their pregnancy,[17] and 58.4% receive at least four antenatal visits.[19] It is hoped that data collection at antenatal clinics in TTM hospital will sample a large proportion of the population. However, a significant proportion will be missed as many do not frequently attend for antenatal care reviews. IRB approval was not obtained. Ethical approval was obtained from the University of Birmingham's Ethical Research committee and the Ministry of Health, Samoa. Data collection took place in May 2015.

The questionnaire was modelled after work by Shriraam, et al,[12] who administered a pre-tested questionnaire, consisting of 12 questions, to pregnant women attending an antenatal clinic in South India. This questionnaire investigated background characteristics, knowledge of T2DM and GDM, in addition to the source of their knowledge. Supplementary questions regarding diet and exercise were included as appropriate to this study; these questions were not modelled on another validated questionnaire. A pilot study of the questionnaire was not performed.

The questionnaire collected background information on participant's age, self-reported height and weight, stage of pregnancy, parity, and previous history of DM/GDM or birth complications. This was followed by 10 questions investigating the participant's awareness of GDM, its risk factors, and the source of knowledge about GDM. Participants' attitudes towards diet and lifestyle, in the context of helping to prevent GDM, were also explored as well as their dietary habits and level of physical activity.

Awareness of the risk factors of GDM was assessed by knowledge of pre-pregnancy obesity, rapid weight-gain during pregnancy, family history, and a past history of GDM. Patients were asked to tick the box by each factor if they thought this was a risk factor. If a participant ticked the boxes, this implied knowledge about risk factors. Participants were deemed to have good knowledge if they correctly identified all four risk factors. The questionnaire asked about the source of knowledge regarding these risk factors; patients were asked to choose all sources that applied to them from the list. Further sources could also be listed by the patient.

Attitudes toward diet and lifestyle were assessed by asking participants whether a healthy diet and regular physical exercise could help prevent GDM. The options "yes", "no", and "don't know" were given; "yes" was considered the correct answer. Participants were asked how many times per week they exercised; the options of 0, 1-2, 3-4 and >5 were given. The questionnaire collected data on types of exercise performed; the options provided were "jogging", "dance", "swimming", "team sports", and "stretches/weights training", with an option of "other" given to record additional options not provided in tick boxes. Dietary habits were briefly assessed by asking patients whether they regularly ate processed foods or foods high in sugar. The options of "yes", "no" and "don't know" were given. The number of portions of fruit and vegetables eaten every day was also asked and participants could select 0, 1, 2, 3, 4, 5+.

Convenience sampling with inclusion and exclusion criteria was used to collect data. All pregnant Samoan women attending antenatal clinics aged over 18 years were included in this study. Questionnaires were excluded if only the background demographic variables were completed. No other inclusion/exclusion criteria were used for this study.

Questionnaires were completed by participants while waiting for their clinic appointment. After written informed consent was obtained (Appendix 1), a questionnaire was completed by participants (Appendices 2 and 3). These were then collected by the principal investigator and stored in a sealed container. The questionnaires were translated into Samoan by a medical student studying at the National University of Samoa and the principal investigator was available throughout the clinic to answer any questions about completion of the questionnaire.

Data Analysis

All data were analysed in SPSS (IBM, California, USA) using descriptive statistics. To compare data we used analysis of variance tests for continuous variables and χ^2 tests for categorical variables. We used log-binomials models with generalized estimating equations to estimate relative risks and 95% confidence intervals. Generalized estimating equations allowed us to account for correlations among repeated observations (GDM) contributed by a single participant.

Results

A total of 149 women initially participated in the study. Four participants were excluded as they did not complete any questions and 4 women did not answer question 6 regarding awareness of gestational diabetes. The final analysis includes responses from 141 women. Many participants did not answer all questions in the questionnaire but were still included, hence there is some variation in response numbers for each aspect analysed.

Background Demographics

The median age of women in the study was 26 years (18-49 years). Eighty-five percent (n=101) were 29-40 weeks pregnant and 27% (n=37) of the women were primaparous (Table 1). Four women stated they had a past medical history of T2DM and 9.6% (n=13) of gravid mothers stated they had a past medical history of GDM. Fourteen women reported previous birth complications (13%); preterm labour and macrosomia were the most common complications, followed by low birth weight and still birth. Of those who described a past history of GDM, two had birth complications; both had preterm labour.

Awareness of GDM

Knowledge of GDM among women in Samoa was mixed. Fifty-eight percent of patients (n=82) were aware that diabetes can occur for the first time during pregnancy, 23% (n=32) were

unsure, and 19% (n=27) did not think that it could (data not shown). Only one woman identified all four risk factors for GDM (Tables 2 and 3). Of those who were aware gestational diabetes can occur for the first time during pregnancy, 49% (n=40) identified a family history of GDM as a risk factor (Table 4). The second most commonly recognized GDM risk factor was pre-pregnancy obesity; 23% (n=19) of women identified this. Those aged 18-22 appeared to have the greatest awareness of gestational diabetes (61%; n=86), while those aged 33-37 had the lowest level of awareness (39%; n=55) (Table 5). This was of moderate significance (Pearson's correlation = -0.613; $P<.001$).

Participants attributed a variety of sources for their awareness of GDM. Doctors were the largest source of information (37%; n=44), followed by family members (24%; n=28) and the television/radio (22%; n=26) (Table 6). Less commonly reported sources were other types of healthcare workers (eg, nurses and midwives), friends, posters, newspapers/magazines, and the internet.

The strongest predictor of GDM awareness was identification of past family history of DM as a risk factor ($P<.001$, ANOVA) (data not shown). Knowledge of pre-pregnancy obesity as a risk factor also strongly correlated with GDM awareness (Pearson's correlation = 0.977; $P<.001$); however, knowledge about rapid weight gain during pregnancy and past history of GDM did not reach statistical significance.

Awareness and Attitudes Towards Lifestyle Measures

With regards to awareness and attitudes towards diet and exercise as strategies to help prevent GDM, ninty-nine women (79%) identified eating a healthy diet and 106 women (78%) identified regular exercise as appropriate lifestyle changes (Table 7). One hundred thirty-three women stated that they exercised at least once a week through dance (45%, n=60), walking (31%, n=42), or swimming (23%, n=31) (Table 8). With regard to dietary habits, only 37% (n=46) of women stated they ate at least five portions of fruit and vegetables each day, whilst 71% (n=89) stated they did not eat a diet high in processed foods and sugars (Table 7).

Table 1. Baseline Characteristics

Determinants	Number of Women (N=141)	Proportion (%)
Gestation		
First trimester (weeks 1-12)	2	2
Second trimester (weeks 13-28)	16	13
Third trimester (weeks 29-40)	101	85
Unknown/missing	22	-
Parity		
Primiparous	37	27
Multiparous	101	73
Unknown/missing	3	-
Past Medical History of T2DM		
Yes	4	3
No	131	95
Don't know	3	2
Unknown/missing	3	-
Past Medical History of GDM		
Yes	13	10
No	115	87
Don't know	4	3
Unknown/missing	9	-
Previous Birth Complications		
Yes	14	13
No	96	87
Unknown/missing	31	-
Birth Complication (n=14)		
Macrosomia	4	29
Small for gestational age	2	14
Preterm labour*	7	50
Stillbirth*	2	14

Percentages do not include unknown/missing. Note. T2DM = type 2 diabetes mellitus. GDM = gestational diabetes mellitus. *n=1 participant had both of these complications.

Table 2. Risk Factors for GDM Identified by Participants

Risk Factor Identified	Number of Women (N=141)	Proportion (%)
Pre-pregnancy obesity	32	25
Rapid weight gain in pregnancy	20	16
Family history of diabetes mellitus	60	48
Past history of gestational diabetes	19	15
Don't know	1	1
Unknown/missing	15	-

Percentages do not include unknown/missing. GDM = gestational diabetes mellitus.

Table 3. Number of Risk Factors for GDM Identified by Participants

Number of Risk Factors Identified	Number of Women (N=141)	Proportion (%)
0	1	1
1	121	96
2	3	2
3	0	0
4	1	1
Unknown/missing	15	-

Percentages do not include unknown/missing. GDM = gestational diabetes mellitus.

Table 4. Risk Factors for GDM Identified by Those Aware of GDM

Risk Factor Identified	Number of Women (n=82)	Proportion (%)
Pre-pregnancy obesity	19	23
Rapid weight gain in pregnancy	12	15
Family history of diabetes mellitus	9	11
Past history of gestational diabetes	40	49
Unknown/missing	6	-

Percentages do not include unknown/missing. GDM = gestational diabetes mellitus.

Table 5. Number of Women Aware of GDM According to Age Group		
Age Group	**Number of Women (N=141)**	**Proportion (%)**
18-22	22	61
23-27	21	51
28-32	19	58
33-37	7	39
38-42	9	47
43+	1	50
Unknown/missing	0	-

Percentages do not include unknown/missing. GDM = gestational diabetes mellitus.

Table 6. Sources of Information about GDM Identified by Participants		
Source of Information	**Number of Women (N=141)**	**Proportion (%)**
Doctor	44	37
Family	28	24
TV/radio	26	22
Healthcare worker	19	16
Healthcare posters	14	12
Newspapers/magazines	8	7
Friends/neighbours	3	3
Internet	2	2
Don't know	1	1
Unknown/missing	23	-

Percentages do not include unknown/missing. GDM = gestational diabetes mellitus.

Table 7. Awareness and Attitudes Towards Preventative Lifestyle Measures for GDM		
Determinant	**Number of Women (N=141)**	**Proportion (%)**
Knowledge of Healthy Diet as a Preventative Measure		
Yes	99	79
No	8	6
Don't know	19	15
Unknown/missing	15	-
Knowledge of Regular Physical Activity as a Preventative Measure		
Yes	106	78
No	9	7
Don't know	21	15
Unknown/missing	5	-
Number of Portions of Fruit and Vegetables Eaten		
0	0	0
1	2	2
2	21	17
3	35	28
4	20	16
5+	46	37
Unknown/missing	17	-
Self-reported Diet High in Processed Foods and Sugars		
Yes	21	17
No	89	71
Don't know	15	12
Unknown/missing	16	-

Percentages do not include unknown/missing. GDM = gestational diabetes mellitus.

Table 8. Type of Physical Activity Performed by Participants		
Type of Physical Activity	**Number of Women (N=141)**	**Proportion (%)**
Dance	60	45
Walking	42	31
Swimming	31	23
Housework	7	5
Running	5	4
Sports	5	4
Stretches	1	1
Unknown/missing	7	-

Percentages do not include unknown/missing.

Discussion

A majority of women (58%) were aware of GDM and only one woman was able to identify all 4 risk factors for GDM. A number of sources of this knowledge were identified; doctors (37%), family members (24%), and television/radio (22%) were the 3 most commonly reported. Seventy-nine percent and 78% of women recognised that regular exercise and a healthy diet respectively were measures to help prevent GDM. This knowledge appears to translate into practice to some degree, as 94% of women stated they exercised at least once per week and 71% said they did not eat a diet high in processed foods and sugars. Thirty-seven percent of women said they eat at least five portions of fruit and vegetables per day. While the study indicates that women believed their diet to be fairly healthy, fast food and imported Western food with little nutritional value are largely consumed by Samoans.[18]

Although doctors were the largest source of knowledge regarding GDM, this was only observed in around one third (37%) of questionnaires. Surprisingly, an even smaller proportion (16%) stated that healthcare workers (nurses and midwives) were a source of information, which is concerning as all pregnant women are strongly encouraged to visit the nurse-led antenatal clinics held at TTM hospital. It is a recognised issue that many women present to antenatal clinics late in their pregnancy; the Demographic and Health Survey 2009 states 13% of women receive antenatal care in their first trimester.[19] Evidence suggests this is because they feel well and do not perceive a need to present earlier.[20] The study reflects this, as over 80% of women were in their third trimester. Doctors are attempting to tackle this issue by visiting women in the communities to encourage them to attend their 12-week scan, with the incentive that they can learn the sex of their baby (personal observations). However, there is a current shortage of doctors in Samoa[21] and district hospitals/health centres are visited only on a weekly basis by doctors,[16] resulting in busy clinics with little time to address health education.[21]

Other reported sources of knowledge were television and radio (22%) and healthcare posters (12%), suggesting messages supported by the Ministry of Health are having a limited

impact. Further development and distribution of these resources could be implemented to educate women and encourage earlier antenatal clinic attendance in order to improve awareness.

Strengths and Limitations

This is the first quantitative study to assess the awareness of GDM among pregnant women in Samoa and also investigate their attitudes towards and implementation of healthy lifestyle practices. The study findings can help guide areas where healthcare promotion should be targeted in Samoa.

There are limitations to the significance of this study. Firstly, this is a cross-sectional study that took place over a one-month period, providing a limited view of Samoan women's perceptions. Additionally, limiting the sample population to clinics at TTM hospital may miss a significant proportion of women, as many women from outside the Apia urban area will find the clinics difficult to attend. The DHS report states 89% of women from Savaii receive antenatal care, compared to 93.5% in the Apia urban area. This could result in women attending fewer antenatal appointments, or not attending altogether. Given that the largest source of knowledge on this subject was reported to be doctors, it may mean these findings are biased and not generalizable outside the Apia urban area. The degree to which participants understood questions is under dispute, as 31% of women who stated a past history of GDM later said they were nulliparous. This could either indicate errors in translation or highlight a lack of understanding of what GDM is; therefore, caution should be used when interpreting the findings of this study. A pilot study was not performed because of time constraints; however, there were no queries from participants during distribution or collection of the questionnaires. Even so, the data collected can still be of use as the results detected large disparities.

Recommendations

Awareness of GDM among pregnant women in Samoa is mixed; only a very small proportion has good knowledge and a large number are not aware of what it is. With a very high prevalence of obesity and diabetes, it is likely to continue to be a relatively common problem facing Samoan healthcare professionals. Therefore, continuing educational strategies are of the utmost importance. As relatively few women had seen government advertisements, this could be an area for future development.

In addition, women are still not visiting antenatal clinics until late in pregnancy, meaning that there is little opportunity to educate patients on GDM and how they can help to prevent it. While doctors are proactively attempting to change this, the results of this study indicate that continuing education is necessary to improve awareness of GDM, as it appears only 58% of pregnant women are aware of the condition. This could be an area to target with public health campaigns. Television and radio messages to encourage women to visit antenatal clinics could also be used in addition to the provision of leaflets and posters.

The largest proportion of women obtained information regarding GDM from doctors. Thus, it is important to ensure that adequate clinic time is always allocated to educate women; this could involve funding additional clinics. Alternatively, introducing education sessions while visiting village clinics could further educate the public.

Early education before pregnancy is likely to be important. With detailed information leaflets and posters already available in the Ministry of Health building, distribution of these in schools and other communities, such as church groups (most Samoans are affiliated to a church parish) could be an effective method to raise awareness.

Further research exploring this population's diet and lifestyle would be beneficial. Participants in this study disclosed that they considered diet and exercise to be important. Therefore, it would be interesting to observe to what extent this is mirrored in their lifestyle.

Conclusions

The high prevalence of obesity and diabetes means GDM is likely to continue to be a relatively common problem facing Samoan healthcare professionals. Women are still not visiting antenatal clinics until late in pregnancy, providing little opportunity for education about GDM and appropriate lifestyle changes that can be made to help prevent it; as well as to managing other health issues. While doctors are proactively attempting to change this, the results of this study indicate that continuing targeted education is necessary to improve awareness of GDM.

Conflict of Interest

None of the authors report any conflicts of interest.

Disclosure Statement

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Appendix 1

Consent Form

This consent form is for women who attend the antenatal clinic at Tupua Tamasese Meaole hospital, and who I am inviting to take part in research on the awareness of and attitudes towards risk factors for gestational diabetes.

The title of the project is: Gestational diabetes in Samoa: A study of pregnant women's awareness of risk factors and their attitudes towards nutrition and physical activity.

Name of principal investigator:
Lucy Price, 4th year medical student at University of Birmingham medical school, England, UK.

I am Lucy Price, a 4th year medical student from England. I am doing research on the awareness and attitudes of risk factors for gestational diabetes. Gestational diabetes is a condition that develops during pregnancy when the pregnant woman develops high blood sugar levels.

This research will involve completing the questionnaire attached, consisting of 15 questions. You do not have to answer all of the questions. Your participation in this research is entirely voluntary and it is your choice whether to take part or not. Question 4 contains sensitive subject matter (miscarriage and stillbirth). If this question is distressing, please do not answer. The information collected will be anonymous.

If you have any questions please come and speak to me or ask a member of staff who can find me. If you have any questions about gestational diabetes please talk to your doctor about this.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research.

Print Name of Participant _____
Signature of Participant _____
Date _____
Day/month/year

Appendix 2

Questionnaire - English Version

Age: _____ years Height: _____ cm Weight: _____ kg
Stage of pregnancy _____ weeks
Are you a registered citizen of Samoa? Yes_____ No_____
Please tick the correct box for each question below.
1. Have you ever been diagnosed with type 2 diabetes mellitus? Yes_____ No_____ Don't know_____
2. Have you ever been diagnosed with gestational diabetes? Yes_____ No_____ Don't know_____
3. Do you already have children? Yes_____ No_____
4. If yes to Q3, were there any birth complications? Tick all that apply.
None_____ Small size baby_____ Large size baby (> 9 pounds)_____ Pre-eclampsia_____
Premature birth_____ Preterm labour_____ Still birth_____ Other (please explain)_____
5. Do any of your close family members have, or have had, type 2 diabetes? Yes_____ No_____
Include immediate blood relatives only, not cousins or spouse/partner.
6. Can diabetes occur for the first time during pregnancy? Yes_____ No_____ Don't know_____
7. What do you think are the things that cause a person to develop gestational diabetes? More than one box can be ticked.
Being overweight before getting pregnant_____ Gaining lots of weight during pregnancy_____
Past history of gestational diabetes_____ Family history of diabetes_____
8. What source(s) did you learn your answers to Q7 from? Please tick all that apply.
Friends/ neighbours_____ Family_____ TV/ radio_____ Hospital charts/ posters_____ Health care worker_____ Doctor_____
Newspapers/ magazines_____ Other (please state)_____
9. Do you think gestational diabetes is a serious condition? Yes_____ No_____ Don't know_____
10. Do you think exercising regularly helps to prevent gestational diabetes? Yes_____ No_____ Don't know_____
11. How many times each week do you exercise? 0_____ 1-2_____ 3-4_____ >5_____
12. What type of exercise do you do?
Running_____ Jogging_____ Cycling_____ Swimming_____ Sports (e.g. basketball/football)_____ Dance_____
Brisk walking_____ Weight training_____ Stretches_____ Gymnastics_____ Pilates/Yoga_____ Other (please state)_____
13. Do you think a healthy diet helps to prevent gestational diabetes? Yes_____ No_____ Don't know_____
14. How many portions of fruit or vegetables per day do you eat? 0_____ 1_____ 2_____ 3_____ 4_____ 5+_____
15. Do you eat a lot of processed foods or foods high in sugar? Yes_____ No_____ Don't know_____

Thank you very much for taking the time to complete this questionnaire.

Appendix 3

Questionnaire - Samoan Translation

Tausaga/Matua: _____
Masina o le ma'i taga_____
O oe se sitiseni/tagataanuu Samoa? Ioe_____ Leai_____
Fa'amolemole togi le pusa talafeagai mo fesili taitasi.
1. Sa maua muamua oe I le ma'I suka? Ioe_____ Leai_____ Le mautinoa_____
2. Na maua oe I le ma'I suka I le taimi o e ma'I taga? Ioe_____ Leai_____ Le mautinoa_____
3. Ua fai se fanau? Ioe_____ Leai_____
4. Na iai ni faafitauli I le taimi fanauga o le fanau?
Leai_____ Pepe la'ititi_____ Pepe telē (ova ma le 9 pauna)_____ Pre-eclampsia_____
Fanau ae lei 'o' ile taimi e tatau na fanau ai_____ Maliu ile taimi e fanau ai/malaia_____ Ni isi ituaiga faamalosi tino_____
5. E iai ni isi o le tou aiga o maua I le ma'I suka? Ioe_____ Leai_____
6. I sou oe manatu, e ono maua e se faafine ma'I taga le ma'I suka? Ioe_____ Leai _____ Le mautinoa_____
7. I sou oe manatu, o a ni auga poo ni mafuaaga e ono maua ai se fafine I le ma'I suka I le taimi o le ma'I taga? Mafua:
Ona o le tino puta (ae le'I ma'I taga)_____ Ona o le tino puta a'o ma'I taga_____
Ona o maua I le ma'I suka_____ Ona e maua se tagata o le aiga I le ma'I suka_____
8. O afia tagata poo ni faasalalauga na e iloa ai le tali o le fesili numera 7?
Uō poo tuaoi_____ Aiga_____ Televise poo leitiō faasalalau_____ Ata tusitusia o le soifua maloloina_____
Au faigaluega soifua malōlōina_____ Alii poo tamaita'I foma'i_____ Nusipepa poo tusi ata faasalalau_____
Ni isi auala faasalalau(upega tafailagi, facebook mmf)_____
9. I sou oe manatu, e tele se aafiaga poo se faafitauli o le ma'I suka a'o ma'I taga se fafine? Ioe_____ Leai_____ Le mautinoa_____
10. I sou oe manatu, e iai se fesoasoani o le faamalosi tino I le faaitiitia lea o le maua o se fafine ma'I taga I le ma'I suka?
Ioe_____ Leai_____ Le mautinoa_____
11. E faafia ona e faamalosi tino I aso o le vaiaso? 0_____ 1-2_____ 3-4_____ ova ma le 5 poo le_____
12. O le a le ituaiga faamalosi tino e te faatinoa?
Tamo'e_____ Vili uila_____ Aau_____ Taaloga(pei o le Pasiketi polo, soka, lakapi)_____
Siva(zumba, afia e x mmf)_____ Si'isi'I u'amea mamafa_____ Ni isi ituaiga faamalosi tino_____
13. I sou oe manatu, e afia e le ai meaai paleni mo le soifua maloloina ona tete'e atu I le ma'I suka a'o ma'I taga?
Ioe_____ Leai_____ Le mautinoa_____
14. E fia le aofa'I o fualaauaina ma meaai taumafamata e te tausamiina I le aso e tasi?
0_____ 1_____ 2_____ 3_____ 4 _____ 5 pe ova atu_____
15. E tele lau tausami I meaai tuuapa po meaai e tele ai le suka? Ioe_____ Leai_____ Le mautinoa_____

Faafetai tele mo le fa'aavanoaina o lou taimi e taliina ai lenei pepa fesili.