Am J Transl Res 2021;13(12):13993-14004
www.ajtr.org /ISSN:1943-8141/AJTR0135525

Original Article

Gestational weight gain influences, beliefs, and goals among Marshallese pregnant women in Arkansas: a mixed-methods analysis

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Received May 21, 2021; Accepted November 9, 2021; Epub December 15, 2021; Published December 30, 2021

Abstract: Despite the high rate of maternal and child health disparities among the Marshallese, there are no studies documenting gestational weight gain influences, beliefs, and goals among the Marshallese. From March 2019 to March 2020, a purposive sample of 33 participants took part in the mixed methods study. Two themes emerged: (1) Gestational Weight Gain Influences and (2) Excessive Gestational Weight Gain Perceptions. In the first theme there were three subthemes: (a) Church and Familial Influence on Gestational Weight Gain; (b) Healthy Gestational Weight Gain; and (c) Lack of Healthcare Provider Influence on Gestational Weight Gain. In the second theme there were three subthemes: (a) Excessive Weight Gain and Pregnancy; (b) Excessive Gestational Weight Gain and Labor; and (c) Gestational Weight Gain Goals. This study will be used to culturally tailor interventions to help Marshallese women reduce maternal and infant health disparities in Marshallese communities.

Keywords: Pacific Islanders, gestational weight gain, community-based participatory research, Marshallese

Introduction

Obesity is a global public health concern. Currently, in the United States (US) obesity (body mass index ≥30 kg/m^2) prevalence is at 42.4% [1]. Pregnancy is a period where women are at higher risk for excessive weight gain, which can increase medical complications for the mother [2], and is associated with gestational diabetes mellitus [3], birth complications, increased health care costs [4], greater postpartum weight retention [5], and higher incidence of obesity later in life [6]. Excessive gestational weight gain (GWG) increases risk for negative health outcomes in the offspring with higher risks of rapid weight gain, obesity, and hypertension later in life [7].

In the US, approximately 50% of women gain weight above the Institute of Medicine's recommended range with racial and/or ethnic minorities being disproportionality affected with excessive GWG [8]. Pacific Islanders have high body mass index levels, and some studies suggest this is a result of nutrition transition, modernization, and lack of access to adequate health care; however, a paucity of published literature exists on Pacific Islanders' GWG and perinatal outcomes in the US [9].

Pacific Islanders are the second fastest-growing population in the United States with the fastest growth occurring in the south, which saw a 252% increase between 2000 and 2010 [10], wherein a majority of Pacific Islanders are Marshallese. Marshallese have chronic health disparities and are disproportionately burdened by poor maternal health outcomes in comparison with other racial and/or ethnic groups. Specifically, the Marshallese have higher rates of pre-term births, low birth weight babies, infant mortality, and inadequate or no prenatal care [11]. Despite the high proportions of cardiometabolic disease and the poor maternal and child health outcomes among Marshallese, there are no studies documenting GWG influences, beliefs, and goals among the Marshallese population residing in the US [12].

To address the health disparities experienced by the Marshallese community, the authors used a community-based participatory research (CBPR) approach. CBPR is a research approach seeking to involve community partners in the research process [13]. This type of research is uniquely suited for engaging indigenous and/or immigrant populations. As part of the CBPR collaborative, the research team has spent the past five years meeting with Marshallese community members to determine and prioritize the community's primary health concerns. Maternal health was identified as a top priority. The purpose of this study is to document and characterize GWG influences, beliefs, and goals among Marshallese in Arkansas.

Methods

Recruitment and sampling

All study procedures and materials were approved by the University of Arkansas for Medical Sciences-Northwest Institutional Review Board (#228023). All study documents used for recruitment, consent, and retention were developed in collaboration with Marshallese stakeholders using a CBPR approach. Stakeholders included a community action network and community health workers (CHWs). Participants who met the inclusion criteria were recruited by female bilingual CHWs at local clinics, faith-based organizations, and community-based organizations and were offered the opportunity to join the study. The inclusion criteria were: (1) women who self-report as Marshallese; (2) 18 years of age or older; and (3) pregnant. Exclusion criteria were: (1) conception with the use of fertility treatments; (2) multiple gestations; and (3) use of medications known to influence fetal growth (e.g., glucocorticoids, insulin, thyroid, hormones). These exclusion criteria were chosen because they would qualify the participants as potential high-risk pregnancies. CHWs provided each participant a copy of the consent in either/both English and Marshallese. The consent forms used plain language. The CHWs read the consent aloud to the participants in the participant's language of choice (English or Marshallese). Participants were given the opportunity to ask questions and have them answered prior to consent.

Research design

The research design used is concurrent triangulation, applying both quantitative and qualitative methods [14, 15]. Concurrent triangulation design is the method of collecting both quantitative and qualitative data simultaneously, yet the analysis is completed and presented separately, unlike sequential designs. The primary advantage of this design is to find agreement and validation through the results. Additionally, the findings from these two approaches provide a more comprehensive representation of the results than one approach is able to offer [15]. The purpose of the quantitative portion of the study was to characterize participants' demographic characteristics and influences, beliefs, and goals related to GWG. The purpose of the qualitative interviews was to allow Marshallese participants to use their own words to describe influences, beliefs, and goals related to GWG using a grounded theory approach [16].

The study consists of two parts developed by the CBPR partnership: a 53-question survey and individual interviews. Surveys were administered at the time of recruitment by trained bilingual CHW and were available in both Marshallese and English. A bilingual CHW also conducted all individual interviews [17]. A semi-structured interview guide with open ended questions was used to encourage participants to speak openly while maintaining consistent inquiries across individual interviews. Probes were used to clarify nuances. Interviews were recorded and transcribed verbatim by a bilingual community co-investigator. Transcripts were then translated from Marshallese to English and checked for accuracy by bilingual research staff.

Data collection

Data were collected from March 2019 to March 2020. Surveys were administered using Research Electronic Data Capture (REDCap) [18]. Individual interviews took approximately 30 to 60 minutes and were conducted at The Center for Non-Profits Shop in Springdale Arkansas or in the home of the participants. Participants were provided a $40 gift card for their participation.

Data analysis

Due to the primarily qualitative nature of our research questions, the intent of the quantitative survey to describe and triangulate the sample and data, and concern for committing either type 1 errors or type 2 errors [19, 20], inferential statistical analyses were not conducted. Descriptive statistics, including means and standard deviations for continuous variables and proportions for categorical variables, are presented to characterize all participant demographics and for variables of interest: (1) GWG influences; (2) GWG beliefs and perceptions; and (3) perceptions of healthy weight using the Body Habitus Models for women and infants [21].

The CBPR team coded transcripts for emergent themes. All themes were collaboratively discussed to ensure scientific rigor and intercoder agreement and to develop the most salient themes within the data. There were two primary coders and one confirmation coder. Codes were classified in a codebook. The most representative quotes are presented. The qualitative results revealed two primary themes that emerged regarding GWG influences, beliefs, and goals within the Marshallese community.

Results

Thirty-three women were recruited. Qualitative saturation was reached with 25 participants. Saturation occurs when redundancy is reached in data analysis and signals to researchers that data collection may cease [22]. Recruitment continued until 33 participants were enrolled, which allowed for more nuanced responses. All participants were in their first or second trimester, and all participants took part in both the survey and the interview.

Quantitative results

Table 1 shows participants' demographic characteristics. Participants' mean age was 28.1±5.9 years. A majority of the participants were single or in an unmarried partnership (54.6%). Twenty-four of the participants had a high school education or lower (72.7%), and 78.7 were unemployed and/or a student. A majority of the participants had no health insurance (60.6%), were born in the RMI (84.8%), and were not enrolled in The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (63.6%). Participants' mean number of pregnancies was 3.8±1.8 with 27% of the women having experienced one or more miscarriages.

Qualitative results

Table 5 contains the qualitative themes and sub-themes. Two primary themes emerged: (1) GWG Influences and (2) Excessive GWG Perceptions.

GWG influences

Within the GWG Influences theme, three subthemes emerged: (1) Church and Familial Influence on GWG; (2) Healthy GWG; and (3) Lack of Healthcare Provider Influence on GWG.

Church and familial influence on GWG: A majority (70%) of participants stated that they attended church or other religious services two or more times a month, and almost all participants (97%) stated that these services included messages about healthy eating one or more times a month (**Table 2**). Most participants said that their family encouraged them to exercise (87.9%) and reminded them not to eat high-fat foods (85%) (**Table 2**). During the qualitative interviews, participants discussed family as the dominant influence with regard to GWG. A majority of the participants said the most influential people were "mainly my family" (9, p.4), "my baby's dad and mom (participant's mother)", (23, p.6, "my grandmother" (4, p.1), or "the elders" (15, p.7). Another participant said, "I would say my mom. I take my mom's recommendations all the time. I would go to her with my questions" (13, p.4). Participants discussed that their family members influenced participants' GWG for both the health of the mother and the infant. One participant said her mother told her to watch her weight gain "because the baby will be too big, and mom will have a hard time during delivery" (23, p.3). Maintaining a healthy GWG was associated with both health and monetary reasons. For example, one participant said:

Well my hubby usually tells me, "you're too young, you need to watch your diet because pretty soon you'll become diabetic if you don't take care of health". He's the one that usually tells me to take care of my health. For example,

Table 1. Participant demographics (n = 33)

	N (%) or Mean ± SD
Age (in years)	28.1±5.9
Marital Status	
Single	5 (15.2)
Married	15 (45.5)
Divorced/Separated	0 (0)
Widowed	0 (0)
A member of an unmarried couple	13 (39.4)
Education	
Never attended school or only attended kindergarten	0 (0)
Grades 1 through 8 (Elementary)	4 (12.1)
Grades 9 through 11 (Some high school)	9 (27.3)
Grade 12 or GED (High school graduate)	11 (33.3)
College 1 year to 3 years (Some college or technical school)	9 (27.3)
College 4 years or more (College graduate)	0 (0)
Household Size (Including yourself, how many people live in your home? Adults and children)	7.2±2.9
Employment	
Employed for wages	7 (21.2)
Out of work for 1 year or more	10 (30.3)
Out of work for less than 1 year	11 (33.3)
Taking care of family and home	4 (12.1)
Student	1 (3)
Health Insurance Status	
No	20 (60.6)
Yes	13 (39.4)
Birthplace	
United States	5 (15.2)
Republic of the Marshall Islands	28 (84.8)
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Status	
No	21 (63.6)
Yes	12 (36.4)
Number of Total Pregnancies	3.8±1.8
Number of Miscarriages	0.4±0.7

Note: Percentages may not total to 100 due to rounding.

when he sees me getting another soda pop after I finished the first one then he would say, "oh, you need to slow down on the soda because doctors' visits are not cheap here" (11, p.7).

Familial influence on GWG was also associated with social norms of body image. Some women discussed their family members' encouragement to gain more weight, stating, "I think my parents, my aunties and my grandma would want me to eat a lot. Like, I don't think they care if I gain weight, because they say that's good" (19, p.5). Other participants discussed the influence to reduce GWG. One participant said, "During my first daughter I gained a lot of weight. She (referring to her mother) always says 'go lose weight because you're fat enough and you're not supposed to look like that" (39, p.5). Another participant said, "some tell us to control our eating in order to keep our figures" (29, p.3).

Healthy GWG: Participants were asked to identify which infants and adults looked the healthiest in the Body Habitus Scales (**Table 4**) [21]. A majority of participants identified that the larger boy (59%) and girl (60%) were healthier

Table 2. Gestational weight gain influences

	N (%)
My family encourages me to start or stick with my exercise program	
Often	16 (48.5)
Sometimes	13 (39.4)
Never	3 (9.1)
Don't Know/Not Sure	1 (3)
My family complains or makes fun of me for eating low-fat and low cholesterol foods	
Often	2 (6.1)
Sometimes	4 (12.1)
Never	27 (81.8)
My family reminds me not to eat high-fat foods	
Often	18 (54.5)
Sometimes	10 (30.3)
Never	5 (15.2)
My family also avoids eating the foods I am avoiding	
Often	6 (18.2)
Sometimes	17 (51.5)
Never	10 (30.3)
My family criticizes or makes fun of me for exercising	
Often	0 (0)
Sometimes	2 (6.1)
Never	30 (90.9)
Don't Know/Not Sure	1 (3)
How much weight I gain is entirely up to me	
Yes/Agree	32 (97)
Maybe/Not sure	1 (3)
No/Disagree	0 (0)
How often do you attend church or other religious meetings?	
2 times per month or less	9 (27.3)
More than 2 times a month	23 (69.7)
Don't Know/Not Sure	1 (3)
In an average month, how often does your church include any message encouraging healthy eating?	
2 times per month or less	22 (66.7)
More than 2 times a month	10 (30.3)
Don't Know/Not Sure	1 (3)

Note: Percentages may not total to 100 due to rounding.

(**Table 4**). For the female adult image, participants identified the three average size figures (78%) (**Table 4**). Participants expressed their belief that gaining weight during their pregnancy was considered healthy. For example, participants said, "we gain weight because we're healthy" (31, p.4) and "gaining weight is considered healthy" (27, p.3). Another participant stated, "They say it's good if we gain a lot of weight so that the baby could be eating a lot and when it comes out it's full, like it's healthy" (19, p.7). The concept of gaining weight during pregnancy was considered expected and acceptable. For example, one participant said, "you're expected to gain weight because you're pregnant. They often recommend us to eat more and feed the baby, gaining weight is acceptable in our culture" (13, p.3).

Being thin or lean was described as unhealthy. One participant described concern when she saw other pregnant women she perceived as too lean. She said:

When I see the skinny pregnant moms, I'm thinking that they are suffering, but I don't know

Table 3. Gestational weight gain perceptions and beliefs

	N (%)
Self-Reported Current Weight Status	
Underweight	2 (6.1)
Normal	21 (63.6)
Overweight	9 (27.3)
Don't Know/Not Sure	1 (3)
How many pounds do you think is healthy for a woman to gain during pregnancy?	
30 pounds or less	29 (87.9)
31 pounds or more	3 (9.1)
Don't Know/Not Sure	1 (3)
Did your doctor talk to you about weight gain? (N = 29)	
Yes	11 (37.9)
No	18 (62.1)
How many pounds do you expect YOU will gain during your pregnancy?	
30 pounds or less	24 (72.7)
31 pounds or more	4 (12.1)
Don't Know/Not Sure	5 (15.2)
How many pounds do your friends and family tell you they think you should gain during pregnancy?	
30 pounds or less	14 (42.4)
31 pounds or more	3 (9.1)
Don't Know/Not Sure	16 (48.5)

Note: Percentages may not total to 100 due to rounding.

Table 4. Perceptions of healthy weight using body habitus models for women and infants (see **Figure 1**)

	N (%)
Please identify which infant you think looks the healthiest. (A. Boys) (N = 32)	
1	0 (0)
2	2 (6.3)
3	11 (34.4)
4	10 (31.3)
5	9 (28.1)
Please identify which infant you think looks the healthiest. (B. Girls)	
1	1 (3)
2	4 (12.1)
3	8 (24.2)
4	12 (36.4)
5	8 (24.2)
Please identify which adult looks the healthiest. (C. Female)	
1	1 (3)
2	0 (0)
3	5 (15.2)
4	8 (24.2)
5	12 (36.4)
6	6 (18.2)
7	0 (0)
8	0 (0)
9	1 (3)

Note: Percentages may not total to 100 due to rounding.

Table 5. Main and sub-themes

Main Theme	Sub-Theme
Gestational Weight Gain Influences	• Church and Familial Influence on Gestational Weight Gain
	• Healthy Gestational Weight Gain
	• Lack of Healthcare Provider Influence on Gestational Weight Gain
Excessive Gestational Weight Gain Perceptions	• Excessive Gestational Weight Gain and Pregnancy
	• Excessive Gestational Weight Gain and Labor
	• Gestational Weight Gain Goals

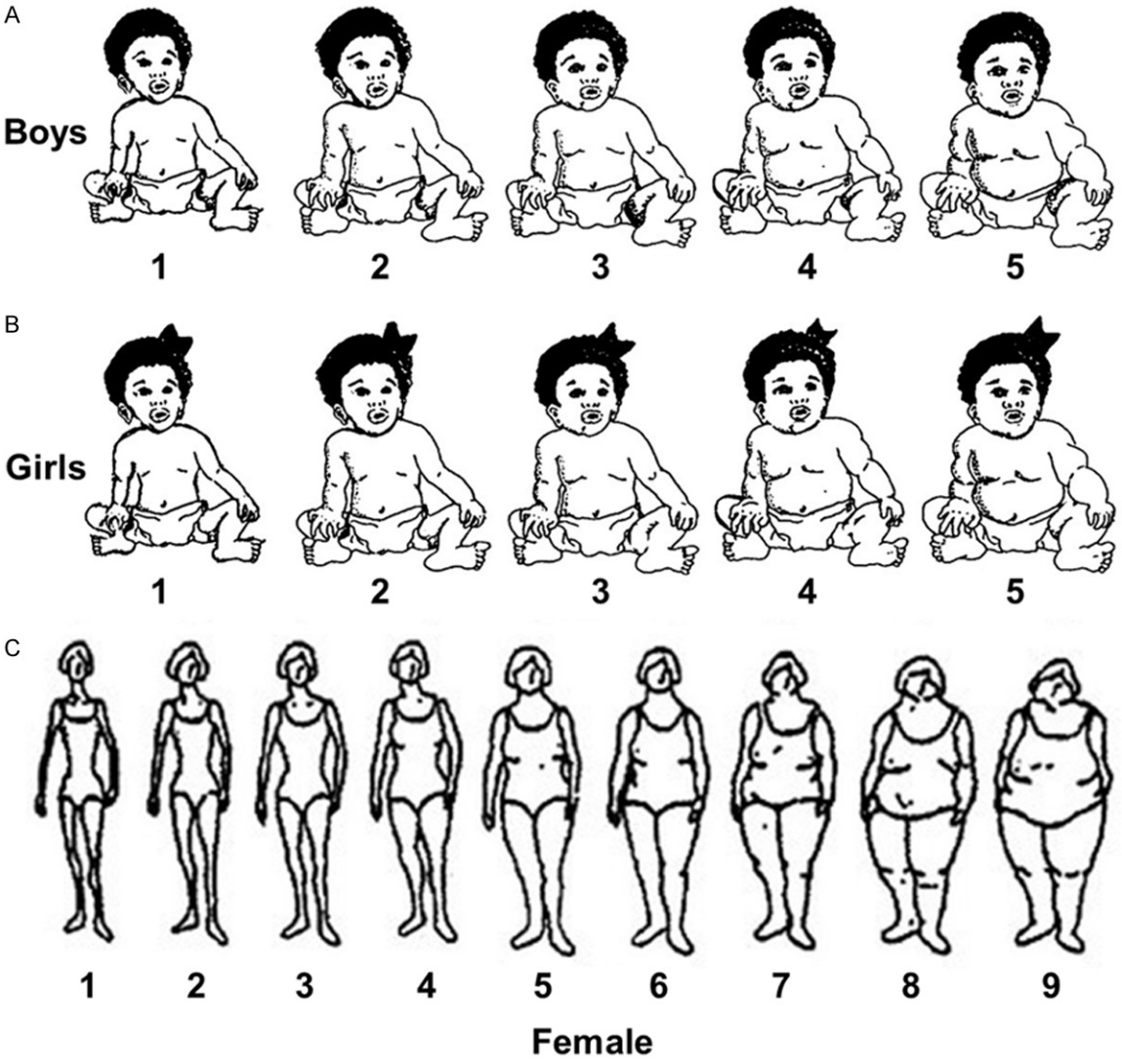

Figure 1. Body habitus models for women and infants. Note: Images were adapted from separate publications [21, 35] and merged into one figure.

how they're feeling. I don't know. Just because they're lean and their stomachs are heavy the way they look at least that's what I think (14, p.7).

Some participants discussed losing weight as unhealthy. Participants said, "When someone gains weight we say it's good, but if we lose weight then it's bad for both mom and baby" (2, p.2). More specifically, the word diet was unilaterally used as having negative effects on the infant. One participant said, "The baby can't grow bigger because if you are on diet you try to lose weight and you eat less" (5, p.1). Another

participant said, "It (referring to the infant) won't be healthy. When we starve ourselves they starve too" (10, p.5). Another participant agreed and said:

I'm trying to eat for two people and give nutrition to my baby. The elders used to say 'you're eating for two people' and if I go on a diet and starve myself, then I will be starving the baby as well. I try not to limit the amount that I'm eating and eat healthy because I know that the baby is feeding on what I eat (13, p.3).

Lack of healthcare provider influence on GWG: There was a notable lack of health care provider influence on GWG. A majority (62%) of the participants said that their maternal health care provider had not talked to them about weight gain (**Table 3**) Sixty-one percent reported being uninsured, and 64% did not participate in WIC (**Table 1**). When asked whether their maternal health doctors had talked with them about GWG, participants stated that they "haven't heard it from the doctors" (11, p.9) and "I haven't heard about it; the doctors haven't told me about it" (31, p.6). Although there was a lack of influence from maternal health care doctors on GWG discussions, participants themselves desired to gain weight. For example, one participant said, "No one [refereeing to their health care provider] is telling me to gain weight but I do want to gain weight" (2, p.3).

Excessive GWG perceptions

Although participants described desiring a healthy GWG, they also discussed concerns of excessive GWG and how this was problematic for pregnancy and birth. Within the Excessive GWG Perceptions theme three subthemes emerged: (1) Excessive Gestational Weight Gain and Pregnancy; (2) Excessive GWG and Labor; and (3) GWG Goals.

Excessive GWG and pregnancy: Participants described excessive GWG as negatively affecting their pregnancy and the health of their infant. One participant said excessive GWG negatively affected her breathing "because when I gain weight I can hardly breathe" (6, p.12). A participant described how excessive GWG limited mobility. She stated, "When we're heavy, we can't be active because we get tired easily" (8, p.7). Another participant said, "It makes you lazy and unhealthy if you gain too much" (12, p.8).

Excessive GWG and labor: Excessive GWG was described as a risk and as creating challenges during pregnancy and labor. One participant said, "It's good to get bigger but not too big. I heard it can cause heart problems, difficulty giving birth, and C-section" (5, p.1). Another participant said, "some eat too much and then struggle during delivery" (15, p.6). Participants used the word "risk" when describing excessive GWG, stating, "I think it [excessive GWG] is very risky when you give birth, that is when it's really bad" (7, p.5). Excessive GWG was described as limiting breathing and mobility during labor. One participant said, "When she gains weight, I would say during delivery she will get tired quickly and have shortness of breath" (6, p.9). Another participant said that excessive GWG could affect a woman's ability to birth entirely: "it is important because it can affect how you give birth. There are people that can't give birth due to their weight" (39, p.5).

Some participants discussed an understanding of the challenges of excessive GWG for labor but described a lack of autonomy in controlling their dietary intake. One participant said, "Watch your diet because you will be screaming. But, we never think about it when we see food that we like. We keep eating and not pay attention to the suffering that they warn us about" (31, p.5).

GWG goals: While a majority of participants identified gaining 10-30 pounds during pregnancy as healthy (88%) and anticipated this weight gain during their pregnancy (72.7%) (**Table 3**), qualitatively, the vast majority of participants stated that they did not have a personal GWG goal. For example, one participant said, "I never thought of that, having a goal" (9, p.4). When asked about their weight gain goal, participants stated that they had not thought about setting a goal: "Any weight is fine with me"; "I'm not sure because I don't monitor my weight gain" (23, p.5); "No, I'm not concerned about gaining weight" (17, p.8); "I don't think about it because it is from the pregnancy" (43, p.3). Similar to the discourse in the theme 'larger is healthier', the participants perceived setting a GWG goal as synonymous with losing weight. One participant said, "How am I supposed to lose weight when I'm pregnant?" (11, p.9).

Setting a GWG goal was equated with having an unhealthy infant. For example, one participant stated, "I don't really care about how much I weigh, just as long as the baby is healthy" (7, p.5). Additionally, the idea of setting a GWG goal was connected to cultural perceptions of image and weight gain. When asked whether they had a GWG goal, one participant responded: "No not really. I don't care what I look like" (39, p.6).

Strengths and limitations

This mixed-methods study has some limitations. Only Marshallese women in Arkansas participated. The results of this mixed methods study may or may not be generalizable to other Pacific Islander groups or to Marshallese residing outside of Arkansas. Additionally, the small sample size precluded reliable significance testing or effect size estimation for the study sample, so inferential statistical analyses could not be conducted and interpreted. Despite these limitations, this is the first study to document GWG influences, beliefs, and goals among the Marshallese population residing in the US. Applying mixed methods allowed for more insight and nuance than a singular methodology. Furthermore, this mixed methods study may also inform work with other indigenous populations who have strong collectivist cultures, thus increasing the generalizability of these findings.

Discussion

This mixed-methods study sought to understand GWG influences, beliefs, and goals in a Marshallese community in Arkansas. The mixed methods study has several key findings that fill a gap in the current literature regarding Marshallese and other Pacific Islander communities and will be used to inform interventions and clinical practices that can reduce poor maternal and infant health outcomes.

Church and familial influences were primary themes identified by participants. This is consistent with prior studies that show family is highly influential on GWG among other Pacific Islander communities [23]. This finding is also consistent with prior literature that shows a strong church influence on health behavior and familial influence on health behaviors on maternal health practices and beliefs among the Marshallese [24-27]. This mixed-methods study adds new insights as the first study to document the importance of church and family influence on GWG among Marshallese. Participants discussed familial influence on GWG predominately focused on the health of the mother and infant, ease of labor, monetary reasons, and maintaining a socially desirable postpartum body shape. However, it is important to note that familial influences included both an encouragement of exercise and healthy eating but also an emphasis on the importance of gaining more weight as a sign of health. Future studies on GWG in Marshallese culture should explore this contradiction further. The significant influences of the church and family on GWG beliefs and practices suggest the need to incorporate these pivotal influences into maternal health education and intervention programs.

Participants also described a strong desire to gain weight during their pregnancy, as this was identified as healthy, acceptable, and encouraged in their culture. There was discussion about concern within the community if a pregnant woman was not gaining enough weight or was on a 'diet', as this was unanimous with 'starving' one's self. Participants described eating more food during their pregnancy and 'eating for two'. This finding is consistent with previous literature that has identified Pacific Islanders as typically being the heaviest of the ethnic subgroups in the US and more likely to value larger body sizes as more attractive and a sign of good health [28, 29]. This finding suggests a need to include this cultural understanding in GWG educational programs that are tailored for Pacific Islander women. More specifically, GWG educational programs should include both an understanding of the cultural perceptions of valuing larger body sizes among the Marshallese in conjunction with the strong familial influence on health eating during pregnant.

Both the quantitative and qualitative results demonstrated that a majority of the participants had little to no discussion about GWG with their maternal healthcare providers. Consistent with previous studies, barriers to communication in prenatal care are a consistent theme among racial and/or ethnic minority groups, adolescent and/or low income women,

and their maternal health care providers [30, 31]. Previous studies with pregnant Marshallese women have reported numerous structural and socio-cultural barriers that affect communication during prenatal care and birth including language barriers and providers' lack of cultural competency [27, 32]. Despite the fact that Marshallese women are eligible for Medicaid when they are pregnant, 61% reported no insurance. The findings from this study are consistent with literature on perceived structural barriers to prenatal care of minority women, with health insurance identified as a primary barrier [30, 31]. The lack of insurance may have also influenced patient-provider communication. There is a need for cultural competency training for maternal health care providers to increase clarity about guidelines for GWG during pregnancy. To attend to the identified health insurance barriers, the authors have engaged with the Marshallese community and health care providers through the development of a Healthy Start program. Specifically, this program has bilingual Marshallese Care Coordinators who help pregnant women: (1) sign up for health insurance; (2) understand how to utilize their insurance; (3) access culturally-appropriate health care and social services; and (4) ensure they receive early prenatal care.

Participants described an understanding of the importance of avoiding excessive GWG for a healthier pregnancy, labor, and infant. Previous literature on GWG beliefs among other Pacific Islander women indicates that the health of the infant was a significant motivator for health behavior changes and that focusing on the health of the infant could be an important entry point to discussing excessive GWG with Marshallese [23].

Participants identified in the survey reported that they had a GWG goal of 10-30 pounds, but qualitatively the participants described not ever considering a GWG goal or monitoring their weight. The lack of a GWG goal is consistent with prior literature documenting a lack of understanding of the need to have a GWG goal in racial and/or ethnic minority women [33, 34]. This study adds new findings as the first to document a lack of GWG goal setting among Marshallese women. Although the participants identified a clear understanding of the adverse effects of excessive GWG, most did not have a GWG goal.

This study is the first to document GWG influences, beliefs, and goals among the Marshallese population residing in the US. These findings are being used to culturally tailor interventions to help Marshallese women achieve recommended GWG and reduce maternal and infant health disparities.

Acknowledgements

Research reported in this publication was partially supported by the National Institute of General Medical Sciences of the National Institutes of Health (NIH) (#5P20GM109096). Additional support was provided by a Translational Research Institute grant from the National Center for Advancing Translational Sciences of the NIH (#1U54TR001629-01A1). The project described was also supported by the Translational Research Institute (TRI) grant (KL2 TR003108) and (UL1 TR003107) through the National Center for Advancing Translational Sciences of the National Institute of Health (NIH). The content of this paper is solely the responsibility of the authors and does not necessarily represent the official views of the funders. This study was conducted according to the guidelines laid down in the Declaration of Helsinki, and all procedures involving research study participants were approved by the University of Arkansas for Medical Sciences-Northwest Institutional Review Board (#228023). Written informed consent was obtained from all subjects/patients. We would like to acknowledge Lynda Riklon, Morda Netwon, and Mell Jacklick for translations and data collection.

Disclosure of conflict of interest

None.

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