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Context for implementing a gestational weight gain program nationally

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Abstract

Objectives: Use the Consolidated Framework for Implementation Research to describe the context in which a gestational weight gain (GWG) intervention, embedded within Parents as Teachers (PAT), will be implemented at PAT sites nationwide.

Methods: Ten site leaders and six parent educators from ten PAT sites in eight states participated in semi-structured interviews and a survey. Audio-recordings and systematic notes were used in a deductive analysis. Scales were descriptively analyzed.

Results: Surveys demonstrated positive perspectives of PAT+GWG. In interviews, participants described PAT+GWG filling a need for prenatal health education and confidence delivering this content, valued integration of PAT+GWG within the PAT curriculum, and recommended materials to meet their clients' needs.

Conclusions: Contextual information can help maximize PAT+GWG's impact.

Keywords

Implementation; Lifestyle change; Gestational weight gain

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Human Subjects Approval Statement

This protocol was approved by the Institutional Review Board at the Human Research Protection Office at Washington University in St. Louis (IRB# 201606107).

Conflict of Interest Disclosure Statement

The authors declare no conflicts of interests.

Obesity and diabetes are major public health problems worldwide, and are related to serious medical complications for women and their offspring. Among women who gave birth in 2014, 50% were overweight or obese before becoming pregnant, heightening the risk for poor immediate and long-term health outcomes.¹ Recognizing the medical significance of obesity management during pregnancy on maternal and child outcomes, the Institute of Medicine (IOM) revised its gestational weight gain (GWG) guidelines to provide optimal GWG ranges based on a woman's pre-pregnancy body mass index (BMI).² However, women with overweight or obesity are more likely to gain more weight than is recommended during pregnancy compared to women who start their pregnancy at a healthy weight,³ putting them at increased risk for maternal and child morbidity and mortality including miscarriage, congenital malformations, gestational diabetes mellitus, macrosomia, preeclampsia, preterm birth, stillbirth, cesarean delivery, and neonatal death.⁴⁻¹⁵ Women who gain excess weight in pregnancy retain more post-partum weight, affecting their own health (eg, their future risk of cardiovascular disease and diabetes); this increases the risks related to obesity in future pregnancies.^{16,17} This recurring cycle of maternal and offspring obesity and metabolic disease is a significant public health¹⁸ and national economic concern as the health care costs of managing these conditions are rapidly escalating.¹⁹

Data from several recent studies and conclusions from review articles²⁰⁻³³ underscore the importance of dietary modification and encouraging an increase in physical activity for encouraging appropriate GWG among women with overweight and obesity. Several core elements have been identified to help achieve appropriate GWG in pregnant women including diet and physical activity, behavioral approaches (eg goal setting, self-monitoring), skill development (eg portion size, label reading), psychosocial support (eg social support) and structured contact (eg dose, contact intensity).³⁴⁻⁴¹ A meta-analysis of interventions to reduce GWG by Yeo et al. found a reduction in GWG of 1.8 pounds among interventions delivered by non-clinical providers.⁴² However, gaps exist in translating research to practice and in reaching high-risk women.

To address these gaps,⁴³ we partnered with Parents as Teachers (PAT), a national home visiting, community based organization. Together, we developed a lifestyle intervention (PAT+GWG) focused on promoting appropriate GWG.⁴⁴ PAT provides parent-child education and services free-of-charge to high-risk families, through up to 25 home visits per year that begin prenatally and continue until the child enters kindergarten.⁴⁵ Of the parents PAT serves 51% are high needs defined by factors such as: low educational attainment, low income, parent or child with disabilities/chronic health condition, recent immigrant family, parent with mental illness, or un-stable housing,⁴⁵ and, in 2015, served 20,889 pregnant women.⁴⁵ The reach of PAT is quite large and diverse as it serves more than 195,000 children in 50 states across the United States as well as more than 100 Tribal organizations, schools and communities. PAT also serves families in five other countries and one U.S. territory.⁴⁶ PAT+GWG was embedded within the existing prenatal home visits offered by PAT (without additional visits). In an efficacy test, PAT+GWG significantly reduced excessive GWG of low-income Black women with overweight and obesity.^{43,44} In the controlled setting of this efficacy trial, the parent educators were hired, trained, and supervised by the research team. To our knowledge, only one other study has attempted to integrate an intervention to promote appropriate GWG into PAT, but included only a small

sample.⁴⁷ Implementation of PAT+GWG across PAT's national network provides an opportunity to reach and benefit thousands of women and their offspring.

Dissemination and implementation science provides a useful guide for understanding (Figure 1) the successful translation of the evidence-based PAT+GWG program to practice, such that it can reach families across the country.⁴⁸ This encourages consideration of the ultimate outcome (ie, participant outcomes as GWG and obstetric outcomes), but recognizes that important implementation outcomes (eg, acceptability, adoption, fidelity) must be achieved at the organizational level for families to receive PAT+GWG,⁴⁹ and describes how implementation strategies (eg, ongoing consultation) can help this occur.⁵⁰ Dissemination and implementation science goes further to explain the importance of context and the many levels of context that can be important (eg, the PAT site level, the parent educator level).^{49,51}

Formative work in real-world settings can help prevent difficulties with implementation, once an intervention is deployed within an organization, and can help determine how PAT site leaders and parent educators feel about delivering PAT. One model from dissemination and implementation science that can be useful in guiding collection of appropriate contextual factors that might impact implementation is the Consolidated Framework for Implementation Research (CFIR).^{51,52} CFIR was selected, as this model offers a menu of constructs that can guide preparation for implementation through a systematic assessment of the implementation context, such as potential barriers and facilitators. These constructs are drawn from a wide ranging evidence base,^{53,54} and have been associated with effective implementation.^{51,52} Using a determinate framework such as CFIR to guide formative research is beneficial, as it can help identify factors (eg, barriers and facilitators) that might impact implementation success.⁵⁵ Therefore, the purpose of the current paper is to describe the context for implementation, as guided by the CFIR, for PAT+GWG at PAT sites across the United States to identify factors (eg, barriers and facilitators) that might impact implementation success of this type of intervention within a national organization.

METHODS

Participants

We recruited PAT sites from a list of 46 sites offering prenatal programs provided by PAT National Center; there were no additional inclusion criteria. Initial contact was made with the site leader (the individuals in this position had a variety of titles - eg, managers, supervisors – across PAT sites, so we refer to them collectively as site leaders). If s/he agreed to participate, he/she was interviewed. After the interview, the site leader provided the names of several parent educators from his/her PAT site, who were recruited to participate. We conducted data collection with site leaders and parent educators to get perspectives within both levels of each organization. The study protocol was approved by the Human Research Protection Office at BLINDED. All participants provided verbal consent before beginning the interview, and were compensated with a \$20 gift card for their time.

Description of PAT+GWT

The PAT+GWT intervention is guided by the PAT strength-based, solution-focused model and a socio-ecologic approach which recognizes the protective and interactive influences on pregnant women across multiple levels.^{56,57} Objectives include skill building and strategies to address: reduction of high-sugar beverages, substituting healthy for unhealthy foods, portion control, regular eating patterns, and breastfeeding barriers and strategies. Physical activity goals encourage a total of 150 minutes (2.5 hours) of moderate-intensity exercise (eg, brisk walking) and/or lifestyle activity per week.

Interview data collection and analysis

Two trained members of the research team (RGT, CS) conducted interviews by phone, between August 2016 and September 2016, using a semi-structured interview guide (example questions and responses are provided in Table 1). The interview guide was developed using the “Interview Guide Tool” of the CFIR website and then adapted to fit PAT and the PAT+GWT intervention.^{51,52}

Interviews were audio-recorded and systematic notes were taken. Notes were managed using Nvivo10. Deductive analysis, beginning with the interview guide and the CFIR was conducted using the Nvivo analysis template downloaded from the CFIR website.^{51,52} While CFIR is not a theory, the deductive analysis was guided by this framework. Themes articulated by study participants were summarized.

Survey data collection and analysis

After their interview, participants were sent a link to complete an online survey assessing several CFIR constructs. Definitions, sample items, number of items, and the possible range of the scale for each construct are available in Table 1. From the Intervention Characteristics domain, the constructs assessed were: Evidence Strength & Quality,⁵³ Relative Advantage,^{53,58,59} and Complexity;^{53,58,59} and from the Inner setting domain Implementation Climate,⁵⁹ Compatibility,^{58,59} Relative Priority,⁶⁰ Readiness for Implementation,⁵⁹ and Access to Knowledge & Information,⁶⁰ were measured. Knowledge & Beliefs about the Intervention,⁶¹ Individual Stage of Change,⁶⁰ Individual Identification with Organization,⁶¹ and Personal Attributes of Individuals (Openness and Divergence)⁶¹ were measured from the Characteristics of Individuals domain. Outer setting and Process domains were not assessed in the online survey.

Scales were analyzed as continuous variables; due to the small sample size, analyses were limited to description of the scales (ie, means and standard deviations). Internal consistency of the scales was assessed using Cronbach’s alpha. Though there were no significant differences between scale scores between PAT site leaders and parent educators, using 2-tailed independent samples t-tests, for descriptive purposes, the scales are presented for the total sample and each group separately.

RESULTS

From the ten PAT sites recruited to the study, ten site leaders and six parent educators participated in qualitative interviews (total N=16); 13 of these (8 site leaders, 5 parent educators) completed the survey. These sites were spread across eight states. All participants had at least a bachelor's degree. Site leaders had been with PAT for between 2 and 23 years, and parent educators had been with PAT for 1 year to 7 years. All of the parent educators were employed with the site full time.

Survey and interview results are summarized within the context of the CFIR in Table 2. Cronbach's alphas for six scales were greater than .9, six were greater than 0.8, two were greater than 0.7, and the remaining 3 were less than 0.7. The survey data demonstrate positive perspectives of PAT+GWG for all metrics, with mean scores for participants in the positive end of the possible range for each scale. For example, the 'implementation climate' scale, based on the measure used by Panzano et al.⁵⁹, had a mean of 5.75 and a standard deviation (SD) of 0.87. On an example item from this scale 'Staff members involved in implementing PAT+ will be appreciated for their efforts,' two responded 'neither agree nor disagree', but the other ten respondents either agreed or strongly agree; this indicates PAT staff fell the climate into which PAT+GWG will be implemented will be positive, supporting the intervention. Also in the inner setting, compatibility had a mean of 6.08 (SD=0.87), and relative priority had a mean 1.15 (SD=0.29). From the intervention characteristics domain, complexity had a mean of 2.38 (SD=0.77) .

As shown in Table 2, in the interview findings, participants expressed the importance of PAT +GWG to fill a need for health education in the prenatal period. Currently, parent educators described searching outside PAT, for example to March of Dimes, to find information to add or referring women to other programs to fill this gap. PAT site leaders and parent educators reported they were confident they could deliver this information and that it is information families want to learn. Additionally, the integration of PAT+GWG within the PAT curriculum, and the potential to add health content within existing parts of the visit (ie, family wellbeing) was particularly important. This is important as there was some concern expressed among educators about being overwhelmed, so adding content outside of the existing visit structure would be a challenge. Usual care PAT offers parent educators the flexibility to tailor the program to the families they serve, so it was also necessary to those interviewed that PAT+GWG was also designed with this flexibility.

Participants had useful suggestions to inform PAT+GWG implementation including providing additional training specific to using PAT+GWG, with a preference for training delivered virtually, to avoid travel (Table 2). One particular issue for training was the concern that some educators and some clients might not be interested in this type of information such that all or parts of PAT+GWG may not be implemented with fidelity, so it is important that training address this barrier. Participants were also concerned about implementing PAT+GWG for families with multiple children, and suggested the program be able to accommodate these families so that other children in the home might be able to participate along with the pregnant mother (eg, incorporating activities appropriate for a pregnant mother and other young children). In the efficacy trial for PAT+GWG, all women

qualified as high needs, and were thus able to receive ten prenatal home visits. However, some participants were concerned that if PAT+GWG is implemented throughout PAT, it may be more difficult to achieve ten home visits for families not considered high needs.⁴⁵ Though not related to the PAT+GWG intervention directly, the issue that most concerned participants was the documentation that would be required as part of a research study. Parent educators have large documentation requirements through several different online systems (different sites described different systems). For sustainability, PAT+GWG documentation could be incorporated into PAT's existing, electronic documentation systems. Finally, participants requested PAT+GWG promotional materials to recruit families such as flyers as well as education materials to meet the needs of their clients (eg, highly visual, low literacy, available in Spanish).

DISCUSSION

We found support for PAT+GWG among PAT site leaders and parent educators, who felt this curriculum would fill an important need in their work with prenatal clients. The CFIR model provided a useful structure in which to place the participants' perspectives related to PAT+GWG, the inner and outer intervention setting, and the characteristics of those who will deliver PAT+GWG. Despite their self-efficacy to deliver PAT+GWG, participants also emphasized the importance of training, particularly in terms of addressing barriers among parent educators and clients that may have less interest in healthy weight; this was a part of the parent educator training for the efficacy trial. This is reflected in the quantitative scales, which found that participants rated PAT+GWG's complexity higher and relative priority lower than have been seen with other interventions using these measures.^{60,62,63} While participants voiced some concerns, such as with visit tracking, they also provided feasible suggestions for how to address these issues.

These findings are particularly important given the barriers clinical providers (eg obstetricians) face providing specific and actionable information related to healthy weight gain.^{64–66} There is often limited time during visits for providers to offer women detailed dietary or physical activity recommendations and strategies for behavior change.^{64,66} Despite pregnant women reporting that weight and weight gain during pregnancy are important to them, there is evidence that they are not satisfied with the information provided by their clinical provider, in part related to time constraints.^{67–69} There are also challenges to implement such programs in health departments.⁷⁰ The ability of a community-based provider, who works with a woman in her home environment and with whom she has a strong, long-term relationship, provides an additional channel for such intervention. Providers may feel more comfortable with community-based providers delivering this information if they are appropriately trained.

An important feature of PAT+GWG is its integration into an existing community-based organization that serves families across the United States through reimbursable home visits. Though low risk families may not qualify for as many visits, they may be able to succeed with fewer visits. High needs families, who have higher weight gain during pregnancy,^{71–73} qualify for more home visits.^{45,74} This structure is important as it allows for sustainable translation of the evidence-based PAT+GWG intervention into practice.^{75–79} The interview

and survey findings indicate important perspectives related to the intervention (eg, PAT +GWG fills a gap in healthy weight curricula for pregnant clients) and inner setting (eg, PAT +GWG fits within the visit structure) that facilitate this implementation. For example, the measures of implementation climate, both in the inner setting domain of the CFIR, had higher scores than those seen elsewhere in studies that have used these measures.^{59,62} This enhances potential impact and addresses major barriers to reach and maintenance, which often plague interventions developed within academic constraints.^{80–83} Future studies should look at how these perspectives compare with those of pregnant women who might be participants in PAT+GWG.

This study has limitations worth discussing. The sample size was small, including only ten PAT site leaders and six parent educators. The small sample size does limit the survey results to descriptive, but these are informative in demonstrating the perspectives of this sample about PAT+GWG, as the measures were drawn from existing surveys. Though the sample size was small, participants were diverse in their location, representing ten sites in eight states, suggesting some generalizability. The current study included only PAT staff; future investigations could investigate the perspectives of pregnant women as well as clinical providers.

Conclusion

Overall, these findings indicate that a community-based home visiting organization can be an important channel to disseminate PAT+GWG, an evidence-based intervention to promote appropriate GWG. Important considerations, voiced by PAT site leaders and parent educators, such as adequate training and materials in Spanish, should be incorporated into PAT+GWG to enhance the likelihood of successful implementation. Integration into PAT allows PAT+GWG to have high reach and sustainability, for maximum impact. These factors are of practical importance to those aiming to embed evidence-based interventions into practice settings to achieve national reach.

IMPLICATIONS FOR HEALTH BEHAVIOR

This investigation is useful both in understanding the implementation of an evidence-based intervention to promote healthy GWG as well as the usefulness of frameworks from implementation science, such as the CFIR, in helping to explore these factors in advance of program implementation on a large scale.

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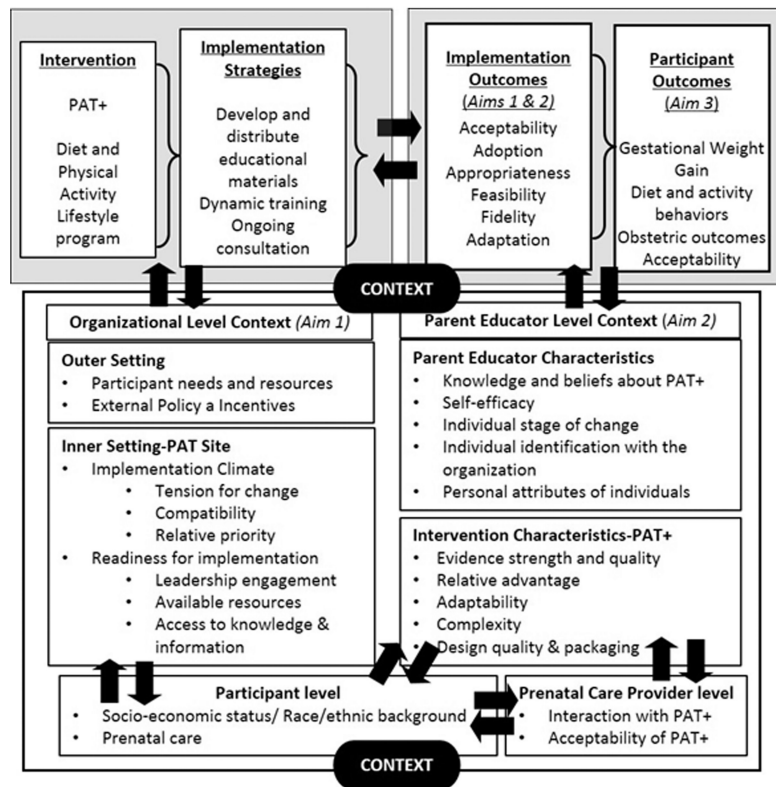


Figure 1.
Conceptual Model for PAT+GWG Intervention and Implementation.

Table 1

Summary of Data Collection Guided by Consolidated Framework for Implementation Research (CFIR)

Contextual Factor	Definition	Sample Item	Measure
<i>Intervention Characteristics – PAT+GWG</i>			
Evidence Strength & Quality	Perceptions of the quality and validity of evidence supporting belief PAT+GWG will have desired outcomes	Should be effective, based on current scientific knowledge.	Rogers, 2003 ^{53a} alpha=0.93 range: 1-5 2 items
Relative Advantage	Parent educators' perception of the advantage of implementing PAT+GWG versus usual care	In general, the PAT+GWG curriculum would be more effective in helping women gain a healthy amount of weight during pregnancy than our current curriculum.	Rogers, 2003 ^{53a} alpha=0.92 range: 1-5 4 items Panzano, 2012 ^{59b} alpha=0.95 range: 1-7 6 items Interview
Adaptability	Degree to which PAT+GWG can be adapted, tailored, refined, or reinvented to meet local need	What kinds of changes or alterations do you think you will need to make to PAT+GWG so it will work effectively at your site?	Interview
Complexity	Perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement	The PAT+GWG curriculum would be difficult to teach.	Rogers, 2003 ^{53a} alpha=0.87 range: 1-5 3 items Pankratz, 2002 ^{58c} alpha=0.76 range: 1-5 4 items Panzano, 2012 ^{59b} alpha=0.94 range: 1-7 10 items Interview
Design Quality & Packaging	Perceived excellence in how PAT+GWG is bundled, presented, and assembled	What supports, such as online resources, marketing materials, or a toolkit, would help you implement and use PAT+GWG?	Interview
<i>Outer Setting</i>			
Participant needs and resources	Extent to which client needs, and barriers and facilitators to meet those needs, are accurately known and prioritized by the organization	PAT+GWG will improve the overall quality of life for clients who receive it.	Interview
External policy and incentives	External strategies to spread interventions, including policy and regulations, external mandates, recommendations and guidelines	Do you anticipate any funding changes in the next few years?	Interview
<i>Inner Setting – PAT Site</i>			
Implementation Climate	Absorptive capacity for change, shared receptivity of involved individuals to PAT +GWG, and the extent to which use of PAT +GWG will be rewarded, supported, and expected within the PAT site	Staff members involved in implementing PAT+GWG are appreciated for their efforts.	Panzano, 2012 ^{59b} alpha=0.89 range: 1-7 11 items Interview

Contextual Factor	Definition	Sample Item	Measure
<i>Tension for Change</i>	Degree to which stakeholders perceive the current situation as needing change.	Is there a strong need for PAT+GWG?	Interview
<i>Compatibility</i>	The degree of tangible fit between meaning and values attached to PAT+GWG, how those align with norms, values, and perceived risks and needs, and how PAT+GWG fits with existing workflows and systems	I think that using PAT+GWG fits well with the way I like to work	Pankratz, 2002 ^{58c} alpha=0.62 range: 1-5 8 items Panzano, 2012 ^{59b} alpha=0.79 range: 1-77 4 items Interview
<i>Relative Priority</i>	Individuals' shared perception of the importance of the implementation within PAT.	I don't know why promoting healthy GWG is so important for PAT to address	Steckler, 1992 ^{60d} alpha=0.54 range: 1-4 4 items Interview
Readiness for Implementation	Tangible and immediate indicators of organizational commitment to its decision to implement an intervention	People who work here are determined to implement this change.	Panzano, 2012 ^{59b} alpha=0.91 range: 1-7 4 items
<i>Leadership Engagement</i>	Commitment, involvement, and accountability of leaders and managers with the implementation.	Arose out of interviews	Interview
<i>Available Resources</i>	Level of resources dedicated for implementation and on-going operations, including money, training, and time.	What resources are you counting on to implement and administer PAT +GWG?	Interview
<i>Access to Knowledge & Information</i>	Ease of access to digestible information and knowledge about PAT+GWG and how to incorporate it into work tasks.	I am aware of curricula which address healthy GWG.	Steckler, 1992 ^{60d} alpha=0.83 range: 1-4 4 items
Characteristics of Individuals (PAT site leaders and parent educators)			
Knowledge & Beliefs about PAT +GWG	Individual's attitudes toward and value placed on PAT+GWG and familiarity with facts, truths, and principles related to PAT+GWG	If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if: it "made sense" to you?	Aarons, 2004 ^{61e} alpha=0.85 range: 1-5 4 items Interview
Self-efficacy	Individual's belief in his/her own capabilities to execute courses of action to achieve implementation goals	I am confident that I can implement PAT+GWG as prescribed at this PAT site.	Interview
Individual Stage of Change	Characterization of the phase an individual is in, as s/he progresses toward skilled, enthusiastic, and sustained use of PAT+GWG	I would like to explore the possibility of improving GWG in my PAT site.	Steckler, 1992 ^{60d} alpha=0.88 range: 1-4 4 items
Individual Identification with Organization	How individuals perceive PAT, and their relationship and degree of commitment with that PAT.	If you received training in PAT+GWG, how likely would you be to adopt it if it was required by your supervisor?	Aarons, 2004 ^{61e} alpha=0.98 range: 1-5 3 items Interview
Personal Attributes of Individuals (Openness)	Extent to which the individual is generally open to trying new interventions	I like to use new types of therapy/ interventions to help my clients	Aarons, 2004 ^{61e}

Contextual Factor	Definition	Sample Item	Measure
			alpha=0.89 range: 1-5 4 items
Personal Attributes of Individuals (Divergence)	Extent to which the provider perceives research-based interventions as not clinically useful and less important than clinical experience	Experience working in the field is more important than using manualized therapy/ interventions.	Aarons, 2004 ^{61e} alpha=0.53 range: 1-5 4 items

^aStrongly disagree (1) to Strongly agree (5);

^bStrongly disagree (1) to Strongly agree (7);

^cStrongly disagree (1) to Strongly agree (5);

^dNot at all (1) to Very true (4);

^eNot at all (1) to To a very great extent (5)

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Table 2

Description of the Context for Implementation Guided by Consolidated Framework for Implementation Research (CFIR)

Contextual Factor	Measure	Group	n	Mean (SD)
<i>Intervention Characteristics – PAT+GWG</i>				
Evidence Strength & Quality	Rodgers 2003 ^{53a}	Total	13	2.77 (0.70)
		PE	5	2.80 (0.76)
		SL	8	2.75 (0.71)
	Rodgers 2003 ^{53a}	Total	13	3.73 (0.63)
		PE	5	3.90 (0.74)
		SL	8	3.63 (0.58)
Relative Advantage	Panzano 2012 ^{59b}	Total	9	6.04 (0.98)
		PE	5	5.80 (1.17)
		SL	4	6.33 (0.72)
Adaptability	Interview	<ul style="list-style-type: none"> • Current healthy weight info for pregnant women would be enhancement, look for outside resources or refer • Would need training 		
	Interview	<ul style="list-style-type: none"> • Flexibility to make PAT+GWG relevant • Some educators felt overwhelmed and concerned PAT+GWG might add too much 		
	Rodgers 2003 ^{53a}	Total	13	2.38 (0.77)
		PE	5	2.53 (0.80)
		SL	8	2.29 (0.79)
	Pankratz 2002 ^{58c}	Total	13	2.63 (0.86)
PE		5	2.60 (0.98)	
SL		8	2.66 (0.84)	
Complexity	Panzano 2012 ^{59b}	Total	6	5.28 (1.19)
		PE	3	4.70 (1.54)
		SL	3	5.87 (0.40)
	Interview	<ul style="list-style-type: none"> • Concern about time required for data collection (visit documentation) • Two educators mentioned that non-high needs families might not qualify for that many prenatal visits. • Concern if mother has other kids, does not engage in visit, or does not think her weight is an issue 		
		<ul style="list-style-type: none"> • Preferred online, checklist format for documentation • Training could be virtual (with video) so travel would not be necessary 		
		<ul style="list-style-type: none"> • Weight/nutrition issues for some PAT clients; many want this info, but concern some may be uncomfortable. • Need low-literacy and Spanish materials • Funders would be supportive 		
Design Quality & Packaging	Interview	<ul style="list-style-type: none"> • Concern funding may not be renewed 		
<i>Outer Setting</i>				
Participant needs and resources	Interview	<ul style="list-style-type: none"> • One site leader mentioned tension with physicians not wanting educators to discuss health 		
External policy and incentives	Interview			
<i>Inner Setting – PAT Site</i>				

Contextual Factor	Measure	Group	n	Results
<i>Intervention Characteristics – PAT+GWG</i>				
Implementation Climate	Panzano 2012 ^{59b}	Total	7	5.75 (0.87)
		PE	3	5.30 (1.09)
		SL	4	6.09 (0.61)
<i>Tension for Change</i>	Interview	<ul style="list-style-type: none"> • One site leader expressed concern about possible changes in funding, might change visit structure, add stress, and make implementation difficult • Parent educators have limited resources in general, and specifically on healthy weight, for prenatal families 		
		Total	13	3.35 (0.49)
<i>Compatibility</i>	Panzano 2012 ^{59b}	PE	5	3.13 (0.57)
		SL	8	3.48 (0.41)
		Total	9	6.08 (0.87)
		PE	5	6.00 (1.09)
<i>Relative Priority</i>	Steckler 1992 ^{60d}	SL	4	6.19 (0.63)
		<ul style="list-style-type: none"> • Appealing that PAT+GWG fits within visit structure and within normal visit (eg, Family Wellbeing), but non-high needs families might be eligible for fewer visits 		
		Total	12	1.15 (0.29)
		PE	5	1.30 (0.41)
Readiness for Implementation	Panzano 2012 ^{59b}	SL	7	1.04 (0.09)
		<ul style="list-style-type: none"> • Important issue for families and fits with family wellbeing • Two educators concerned healthy weight might not be most important issue 		
		Total	7	5.89 (0.89)
<i>Leadership Engagement</i>	Interview	PE	3	5.25 (1.00)
		SL	4	6.38 (0.43)
<i>Available Resources</i>	Interview	<ul style="list-style-type: none"> • Site leaders and parent educators felt it would be implemented if supervisors decided to do so. • Site leaders would remind parent educators to complete paperwork • Participants requested: training, recruitment materials (eg, flyers and pamphlets), education materials and incentives for families, ways to incorporate dads and other children, and materials in Spanish. 		
		Total	13	2.54 (0.82)
<i>Access to Knowledge & Information</i>	Steckler 1992 ^{60d}	PE	5	2.45 (0.67)
		SL	8	2.59 (0.94)
		Total	12	4.02 (0.79)
<i>Characteristics of Individuals (PAT site leaders and parent educators)</i>	Aarons 2004 ^{61e}	PE	5	3.70 (1.14)
		SL	7	4.25 (0.38)
		Total	12	4.02 (0.79)
Knowledge & Beliefs about PAT +GWG	Interview	<ul style="list-style-type: none"> • Participants believe healthy weight gain is important for their clients, but worry some educators and some families may not share belief 		
		Total	13	3.33 (0.73)
Self-efficacy	Interview	<ul style="list-style-type: none"> • Confidence in delivering PAT+GWG; many already deliver health information 		
		PE	5	3.10 (1.08)
		SL	8	3.47 (0.43)
Individual Stage of Change	Steckler 1992 ^{60d}	Total	13	3.33 (0.73)
		PE	5	3.10 (1.08)
		SL	8	3.47 (0.43)

Contextual Factor	Measure	Group	n	Results Mean (SD)
<i>Intervention Characteristics – PAT+GWG</i>				
Individual Identification with Organization	Aarons 2004 ^{61e}	Total	13	4.36 (1.01)
		PE	5	3.73 (1.42)
		SL	8	4.75 (0.39)
	Interview	• One parent educator described not personally being excited to deliver PAT +GWG, but thought it would benefit the site.		
Personal Attributes of Individuals (Openness)	Aarons 2004 ^{61e}	Total	12	3.92 (0.60)
		PE	5	3.80 (0.93)
		SL	7	4.00 (0.25)
Personal Attributes of Individuals (Divergence)	Aarons 2004 ^{61e}	Total	12	1.98 (0.58)
		PE	5	2.00 (0.66)
		SL	7	1.96 (0.57)

^aStrongly disagree (1) to Strongly agree (5);

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