ABSTRACT

Postpartum depression (PPD) is one of the most common and severe postpartum morbidities, affecting 10%–20% of mothers within the first year of childbirth. The adverse effects of PPD, namely prevention of mother-baby bonding and early cessation of breastfeeding, adversely affects infant growth and brain development. Studies have found that up to 50% of women with PPD go undiagnosed. Despite the American Academy of Pediatrics (AAP) recommendations, only a small percentage of paediatricians are currently screening for PPD. This project aimed to improve PPD screening using a validated tool to 75% in a primary care inner-city clinic serving a predominantly underserved population as per AAP recommendations. Baseline data for 40 charts of 2-month-old and 4-month-old well-child visits showed no documentation of PPD screening. The screening tool used for this project was the Edinburgh Postpartum Depression Scale (EPDS), which is a validated 10-item screening questionnaire for PPD. Three Plan-Do-Study-Act (PDSA) cycles were implemented involving educational strategies, system-based practice improvement and stakeholder participation. Improvement seen after PDSA cycle 1 was minimal. At the end of cycle 2, 16/50 (33%) charts had documentation of screening using EPDS. At the end of cycle 3, 33/40 (82%) charts had EPDS documentation, an increase of 49% from cycle 2. There were eight in total positive PPD screenings between cycles 2 and 3. These patients were provided counselling support through a social worker and referral services through the local community mental health organisation. We achieved more than our 75% target goal for PPD screening implementation at the residency clinic, thereby increasing residents’ awareness of PPD and the importance of PPD screening. Poststudy follow-up shows that screening was maintained at a higher rate but never reached 100%.

BACKGROUND

The term PPD is changing to peripartum depression. According to the Diagnostic and Statistical Manual-V (DSM-V), PPD was removed as a separate entity and instead added the peripartum specifier to Major Depressive Disorder (MDD). To be considered as PPD, the parent should experience symptoms of MDD within pregnancy or up to 4 weeks after childbirth. The International Disease Classification (ICD-10) also does not identify PPD as a separate diagnosis. It classifies PPD as ‘Mental and behavioural problems which cannot be classified anywhere but associated with puerperium within the first 6 weeks of childbirth’. Postpartum blues, which results in mild irritation, mood swings, tearfulness and fatigue, has been reported in the first 10 days of childbirth. The incidence of the blues has been estimated to vary training, and their patient load depends on their level of training. The clinic is supervised by faculty from the MSU paediatric departments on a rotating basis. The clinic also has a resource for one social worker and one behavioural health consultant (BHC) from the local community mental health centre. In 2010, the American Academy of Pediatrics (AAP) issued guidelines regarding postpartum depression (PPD) screen in paediatric offices. Our internal review showed variability in administering the depression scale to postpartum mothers, thereby potentially missing the diagnosis and delivery of services to many mothers of newborn children. Besides, many residents were not aware of the current recommendations regarding the PPD screen. This prompted the initiation of this project due to mainly two reasons, underutilisation of resources and not following practice guidelines as recommended by AAP.

The aim for this project was to improve screening for PPD to 75% in a primary care inner-city clinic serving predominantly underserved population by using a validated tool for all infants’ visits at 2 and 4 months as per AAP recommendations.
between 15% and 85%, and though most mothers with postpartum blues do not need intensive treatment, the severity of the blues may be a predictor of developing the PPD.6–8 Even though the strict classification of PPD a with specified time limit varies from 4 to 6 weeks after child birth, PPD may manifest in mothers up to 6 months after delivery.6,7

It has been widely estimated that the incidence of PPD ranges between 10% and 15% in economically developed countries.6,7 However, the incidence across the world varies widely due to differences in cultural practices, reporting and family support. Studies have estimated PPD in Korea to be around 36% within 6 weeks after delivery and in Iran to be 34%.8,9 One study by Halbriech et al estimated PPD prevalence and reporting to be anywhere from 0% to 60% and concluded that the widely cited prevalence of 10%–15% for PPD might not be reflective of the burden of the problem.10

Multiple studies have well documented the impact of PPD on maternal, paternal and child health. PPD has been attributed to cessation or higher odds of non-continuance of breastfeeding, erratic sleeping in moms and babies, waking up of babies during nights in the late infancy period, unsafe infant sleeping habits, maternal fatigue, children receiving fewer well-child visits at 12 months of age and not receiving recommended vaccinations by 24 months of age.11–14 Two studies have shown that mothers with PPD also did not conform to the standard child safety practices such as using car seats, using electric plug safety covers, safety latches and lowering bath water temperature.15–17

Paternal depression is estimated to be about 6% with the birth of a child and increases when there is associated PPD in the partner as well. This may also lead to separation from partner, arguments, divorce and unsafe family situations with violence, substance abuse and so on. AAP recommends screening for PPD at 1-month, 2-month and 4-month infant well visits with a standardised developmental scale.18 Many scales have been validated for depression screen. The United States Preventive Services Task Force (USPSTF) recommends using a validated tool to screen for depression in all adults aged 18 years and older as well as for PPD. It has endorsed the Edinburgh Postpartum Depression Scale (EPDS) as one validated scale, with translated versions validated in many countries. The AAP has recommended a score of 10 as a cut-off for referral to resources.18

**MEASUREMENT**

On retrospective review of clinical charts for 1-month, 2-month and 4-month visits between 2015 and 2016 for baseline measurement, none of the 40 charts had any documentation of discussing PPD or screening for PPD. The charts were pulled randomly with the help of the Health Information Team (HIT). The sample size was chosen based on the number of newborn visits to the residency clinic encounters in 12 months. Moreover, anecdotal information collected from resident providers highlighted a knowledge gap regarding PPD and tools available for screening (table 1).

**DESIGN**

It was clear that the residency clinic had to make changes to adhere to the AAP guidelines. This was decided to be done as a Quality Improvement (QI) project based on the Plan-Do-Study-Act (PDSA) cycle. One resident was chosen to be the driving force for the project and used this project as part of the required research project at the end of the 3-year training in Paediatrics. One mentor faculty was appointed and along with the resident, formed the core team of the QI. Other stakeholders identified were remaining resident providers, core residency faculty who oversee the trainees, the clinic nursing staff and the social worker and the BHC. The core QI team met every 2–3 months to discuss logistics, survey distribution to the residents and to coordinate with clinic staff.

As the first step for the PDSA cycle, the core QI team decided to administer a 5-question survey to collect information about current PPD screening practices and to stimulate providers’ interest in PPD (see online supplementary file: Survey Instrument for the Postpartum depression screen—PDSA 1). The survey was administered through an online survey platform. It was sent to all the resident providers and core-supervising physicians. Afterwards, the EPDS instrument was introduced to the clinic staff, residents and providers, and questions were answered on scoring and interpretation of the tool. A positive cut-off score of 10 was finalised, indicating a need for further interview, history and referral. Resources were also put in place in the clinic by the social worker and the BHC with the help of regional community mental health centres to help the mothers who were identified with PPD. For PDSA cycle 2, a clinic protocol was developed and disseminated to all the residents, staff and supervising providers; the protocol was modified for PDSA cycle 3. The core QI team also developed materials needed for the didactic session with resident providers, which were used in the PDSA cycle 2 (see online supplementary file: Table 1

<table>
<thead>
<tr>
<th>Age groups of children screened during PDSA cycles</th>
<th>Baseline data</th>
<th>PDSA1</th>
<th>PDSA2</th>
<th>PDSA3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-month well visits</td>
<td>10</td>
<td>12</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>2-month well visits</td>
<td>15</td>
<td>13</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>4-month well visits</td>
<td>15</td>
<td>15</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>Total screened</td>
<td>40</td>
<td>40</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>

PDSA, Plan-Do-Study-Act.
RESUMEN
El proyecto QI tuvo tres ciclos PDSA con un intervalo de 3 meses entre ellos. Como se mencionó anteriormente, el objetivo fue aumentar la tasa de cribado de PPD a 75%. En el primer ciclo PDSA, un cuestionario de 5 preguntas sobre PPD fue administrado a todos los residentes y el personal de la escuela. Las preguntas evaluaron si el proveedor de atención de salud entendía las actuales recomendaciones de AAP sobre PPD. El cuestionario se distribuyó a los residentes de regreso y el personal de la recepción de la enfermera recogió el cuestionario después de la visita. Se inició un ciclo diacrónico cada viernes por la mañana. La sesión didáctica incluyó la implementación de un cuestionario válido, como EPDS. El cuestionario se ajustó para incluir a todas las madres hablantes de inglés; por lo tanto, se usó en inglés.

RESULTADOS
Total 44% de los residentes (n=24) respondieron, ‘Never or rarely’ cuando se les preguntó si habían hablado de PPD durante sus visitas de niño. Entre aquellos que hablaron de PPD, 75% de los residentes que hablaron de PPD durante sus visitas de recién nacido y 1-visitas de niño. Total 80% de los residentes de salud percibieron que no usaron un cuestionario válido para el cribado de PPD y 94% de los residentes de salud no estaban seguros de las actuales recomendaciones para PPD. Sin embargo, se hizo un comentario sobre las actuales recomendaciones, una tercera parte de los residentes adecuadamente estimaron las recomendaciones de AAP. Al final del ciclo PDSA 1, solo 1 de los 40 visitas (5%) presentó una respuesta positiva.

LA MODIFICACIÓN DEL PROTOCOLO DE CLÍNICA
Después de hacer cambios en el ciclo PDSA 2 con educación y desarrollo del protocolo de clínica, la tasa de cribado de PPD aumentó a 33% (16 pacientes fueron administrados EPDS de 50 pacientes) al final del ciclo PDSA 2, que mostraron que la combinación de didácticas y la asignación de administrar el cuestionario a los residentes fue una respuesta positiva aunque todavía era inferior a nuestro objetivo. El cuestionario mejoró en 3 meses, un aumento de 49% del ciclo 2.

DURANTE EL TIEMPO DE 6 MESES DE LOS CICLOS PDSA 2 Y 3, hubo ocho respuestas positivas para PPD (10%). Para aquellos que fueron positivos para PPD, se proporcionó soporte social y se establecieron servicios de remisión hacia la comunidad local de salud mental.

LECCIONES Y LIMITACIONES
Se aprendieron muchas lecciones de este proyecto, y una de las más importantes es que el aprendizaje pasivo no funciona para el cambio de conducta. Por ejemplo, espera que meramente enviar una encuesta y proporcionar las recomendaciones de AAP para el cribado de PPD en el final de la encuesta. La encuesta mejoró en 3 meses, un aumento de 49% del ciclo 2.

Después de la modificación del protocolo de clínica en el ciclo PDSA 3, de los 40 visitas de niño, se administraron tamización de un cuestionario válido, que se usó en inglés. La encuesta mejoró en 3 meses, un aumento de 49% del ciclo 2.

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clinic through the front desk staff, the rate improved swiftly.

Besides, it is essential to screen and have resources available for patients to access when they have reported PPD. The QI team worked with the social worker and the BHC to develop a plan that was appropriate for our patient population with most of them classified as underserved. Of note, the PPD was positive in 10% out of the relatively small number of charts we pulled. The 10% prevalence we found in our clinic is almost the same as the national average of 10%-15% in the USA. It is also imperative to have a dedicated QI team to be the driving force to make everyone understand the purpose and the perceived benefits of screening. Anecdotal data gathered from our social worker, BHC, clinic staff and resident providers showed there was no impact of administering the screen on the clinic flow.

CONCLUSION

The project was an excellent experience for the QI team in terms of its ultimate objective of screening PPD early and helping the families. Throughout the project, we learnt that clinical staff is ready to make changes, but it needs to be practical and integrated. The project is easily implementable and sustainable. One-year follow-up data from May 2017 to May 2018 shows an implementation rate of 85% (85/100 patients) and May 2018–May 2019 showed an implementation rate of 82% (82/100 patient visits). Some of the barriers are continued medical staff training due to turnover, new resident physician training in the protocol and interpretation. Clear clinic flow protocols may help in implementation, and the instrument used for screening is free to obtain and use. The challenge in providing resources for those who meet the criteria for PPD needs to be addressed early and integrated within the clinic protocol for this to be a success. This project succeeded in increasing the screening and identified at-risk mothers for PPD and helped them make a connection with community resources. This, in turn, likely influences the family dynamics, child-mother interaction and child safety in a positive manner. The plan is to continue administering the EPDS and improve the screening to all mothers by improving the rate to 100% with the help of resident and clinic staff continued buy-in. As recommended by various professional organisations, PPD screening can be implemented successfully within a primary care practice with minimal resources and help new mothers and families in need.

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Contributors SS planned the study and created a first draft of the manuscript. ZS was involved in the operational part of the project including collecting data over the three cycles and involved in the strategy, design and result parts of the manuscript.

REFERENCES