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BRIEF REPORT

Barriers to Obstetric Prenatal Care Among Pregnant Women at Risk for Dual Pathology

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Abstract

Purpose Mother mental health and substance misuse (called dual pathology) is a big concern that could interfere with health care during pregnancy, but there is a neglected field regarding barriers to prenatal obstetric care among these women.

Methods One hundred sixty-three pregnant women at risk for dual pathology were assessed for levels of attention to scheduled appointments with obstetric service.

Results Attending levels negatively correlate with depression (-0.174, $p=0.034$) and post-traumatic stress symptoms (-0.214, $p=0.011$) and alcohol abuse report (-0.259, $p=0.045$).

Conclusions Care providers should pay attention to women's mental health and alcohol abuse to prevent miss-attention.

Pregnancy and childbirth are stages in a woman's life that call for special attention. It is estimated that at least 15% of all gestations are affected by potentially life-threatening conditions (WHO, 2009). Although not all complications related to pregnancy are predictable, the majority of maternal deaths are from preventable or treatable causes (Kyei-Nimakoh

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et al., 2017). The best means we have for detecting and preventing pregnancy and childbirth problems, and thus improving maternal health, is regular health care for women throughout these periods (Ronsmans et al., 2006). Beyond clinical guides for good practices and evidence-based interventions, there is a basic need to identify factors that can interfere with health care access so that these factors can be addressed (Gulliford et al., 2002). True access to a service depends not only on its availability but also on other factors related to both socioeconomic and cultural issues; thus, the concept of "access" has been explained based on three interrelated aspects: availability, affordability, and acceptability (Kyei-Nimakoh et al., 2017).

As there is growing concern about health care in pregnancy, a substantial amount of research on barriers to obstetric care services has been published (Bohren et al., 2014). Some of the barriers identified so far are related to (a) tangible aspects (related to accessibility and availability) and (b) social aspects, such as educational level, language disparities, migration, and expectations or prejudices on the part of both pregnant women and care providers (more related to acceptability).

Despite the relevance of the topic, in Spain, the literature on barriers to prenatal obstetrical care is scarce, and the one study that can be found is not recent. An epidemiological study in 1999 showed only a low number of patients in Spain as receiving insufficient prenatal care, with that lack of care mainly related to social obstacles and personal problems. Insufficient prenatal care rates in Spain are low, similar to many other European countries. Although in Spain there are no direct economic impediments to accessing prenatal care as we have a public health care system, there are other barriers to pregnant women's access to health care, related mainly to acceptability: lack of information and social and cultural inequality explain a large share of pregnancies with inadequate care (Herrera de la Muela et al., 1999).

In addition, there are other barriers that have received much less exploration, related to future mothers' mental health and substance use disorders (called "dual pathology" when presented together). These conditions could be also framed as barriers related to acceptability as they still generate many prejudices (Guilfoyle et al., 2008).

Smoking, taking benzodiazepines, or other forms of substance use during pregnancy amount to the main preventable cause of mortality and morbidity, in addition to which they have a bidirectional and deleterious interaction with mental health problems. The mental health disorders that most often co-occur with substance use are mood disorders (40–42%), anxiety disorders (24–27%), and post-traumatic stress disorder (24–27%) (McGovern et al., 2006).

Prenatal exposure to cocaine, alcohol, or tobacco is known to have many negative effects on children. Adverse pregnancy and birth outcomes, including miscarriage, prematurity, congenital abnormalities, and neonatal or sudden infant death, have been reported (Ekblad et al., 2010). Perinatal mental health problems in the mother have also been related to abnormal neurodevelopment and mental health disorders in children (Kingston et al., 2012). These conditions could be a barrier to adequate prenatal obstetric care for pregnant women, not just because of the mental conditions themselves but also due to the associated prejudices and stigma (Guilfoyle et al., 2008). Given the serious consequences that these situations can have for both mothers and children and the fact that approximately half the people with a mental disorder will develop a substance use disorder during their lives (Alegría et al., 2021), obstetric care as a prevention tool should be a priority (Guilfoyle et al., 2008). In order to ensure the occurrence of that obstetric care, however, it is necessary to know in depth the barriers to such care among this group of pregnant women.

Framed as a barrier related to acceptability, the stigmatization of substance use is one of the main factors behind the lack of access to medical care (Wakeman & Rich, 2018). Potential mediating factors in health care and substance use have been grouped into four categories:

- The mistaken belief that substance use is a choice and not a disease. This belief is widespread both among medical professionals and among patients themselves, who may be reluctant to ask for help. Added to this factor is a gender bias whereby women with substance misuse are less likely to seek help (Schober & Annis, 1996) and show more apprehension regarding treatment in a medical setting (Sarkar et al., 2020);
- Health care models that do not address substance use and health issues together but offer separate resources. This conception of the person as the sum of independent aspects has traditionally hindered the integration of psychiatric and psychological care into other health services (McGovern et al., 2006);
- The language used to refer to substance use and attitudes toward mental illness (Khenti et al., 2019); and
- The way in which the legal system responds to defendants with addiction problems (Wakeman & Rich, 2018).

To our knowledge, there is no literature regarding barriers to prenatal obstetrical care among women at risk of dual pathology in Spain or in other countries. This leads us to the following research question: *are there some particular conditions of dual pathology in pregnant women that may be placing these women's access to adequate obstetric care at risk?*

Given the dearth of studies on the subject, an exploratory study is proposed instead of a confirmatory one. However, based on previous research in Spain (Herrera de la Muela et al., 1999), we posit that missed obstetric appointments will not be frequent, but that the severity of the future mother's dual pathology as well as features of her socioeconomic background will interfere with attendance.

To explore the barriers that could interfere with adequate prenatal care among these women, we developed the present study, framed in a broader research project called Woman Mental Health and Addictions on Pregnancy (WOMAP).

Methods

From July 2016 to December 2019, 2,014 pregnant women were screened. Participants were selected from among pregnant women over 18 years old who were less than 26 weeks into pregnancy and undergoing obstetric visits in one of five hospitals in the Madrid, Spain, metropolitan area: Jiménez Díaz Foundation (Madrid urban area), Infanta Leonor Hospital (Madrid urban area), Tajo University Hospital (Aranjuez), General Hospital of Villalba (Villalba), and Infanta Elena Hospital (Valdemoro). Participants were approached either in situ upon completion of their obstetric appointment or by telephone after the obstetrician in charge obtained contact authorization from the patient. In both cases, the study was explained to the participants and the screening interview administered to those who agreed to participate.

The participating hospitals jointly provide health coverage for more than 1,300,000 inhabitants from diverse socioeconomic backgrounds; the area they cover is representative of the population of the Autonomous Community of Madrid.

Participants were first screened to identify those considered to be at risk for coexisting mental health problems and substance use. Those who screened positive were offered participation in the WOMAP clinical trial and then assessed via a more extensive questionnaire.

Inclusion criteria in the screening were (1) two or more positive responses on the AC-OK-mental health subscale (AC-OK-MH); (2) one or more positive responses on the AC-OK-substance abuse subscale (ACOK-SA) and/or reporting smoking more than once a month; (3) not being users of mental health specialized services, defined as not having a mental health appointment in the following month and not having seen a mental health specialist in the last 3 months; and (4) answering NO to questions 4 and 5 (Paykel et al., 1974) if administered the Paykel Suicide Scale. (The questions on this scale are listed under "Instruments" below.)

Exclusion criteria for the clinical trial were (1) having received a diagnosis of a psychotic or bipolar-related disorder or (2) inability to give consent, determined by inability to respond to questions relating to the purpose or process of the study.

Due to the clinical trial protocols, only eligible women were assessed with a more extensive battery of tests and a semi-structured interview.

Ethical Considerations and Data Protection

The study was carried out in compliance with the Declaration of Helsinki and approved by the Local Ethics Committee. After a complete description of the study, all participants gave informed consent.

Instruments

The screening assessment included the AC-OK co-occurring screen (Cherry & Dillon, 2013) and the Paykel Suicide Scale (Paykel et al., 1974).

The AC-OK is an easy-to-use questionnaire, validated for Spanish-speaking populations, that is designed to be a useful detector of mental health problems and substance use. The AC-OK includes 15 items: nine related to mental health (e.g., "During the past year: have you had periods of time where you felt that you could not trust family or friends?") and six related to substance use (e.g., "During the past year: have you been preoccupied with drinking alcohol and/or using other drugs?"). The Spanish version has good psychometric properties, with good internal consistency (mental health screening [$\alpha = 0.82$]; screening of substance use [$\alpha = 0.90$]) and excellent sensitivity and specificity. The cutoff point is set at two or more positive responses for the mental health subscale and at one or more for the substance use subscale (Chavez et al., 2017).

The Paykel Suicide Scale (PSS) consists of five questions about suicide that ask whether the subject is fed up with living, wishes to die, has suicidal ideation, has suicide plans, or has made suicide attempts. It has a Yes/No dichotomous response system (e.g., "Have you felt that life is not worth living?" and "Have you tried to take your own life?"). The PSS has been validated in Spanish and shows adequate psychometric properties, being invariant according to gender and having an excellent fit for the one-dimensional model and a reliability index greater than 0.90 (Fonseca-Pedrero et al., 2018).

The clinical trial assessment included a more extensive battery of mental health and substance use questionnaires and a semi-structured interview.

For mental health, we used the Patient Health Questionnaire (PHQ-9), which addresses the nine DSM-IV diagnostic criteria for major depressive disorder (Kroenke et al., 2001) by asking patients how often they have been bothered by certain feelings over the past 2 weeks (e.g., "feeling down, depressed, or hopeless" or "feeling tired or having little energy"). This scale has been validated for the Spanish-speaking population, showing high internal consistency indexes (McDonald's ω coefficient of 0.90 and Cronbach's alpha of 0.89) (Saldivia et al., 2019). We also applied the General Anxiety Disorder 7-item screening (GAD-7) for anxiety (Spitzer et al., 2006), which asks patients how often they have been bothered by particular problems over the last 2 weeks (e.g., "feeling nervous, anxious or on edge" or "not being able to stop or control worrying"). The Spanish adaptation of this scale showed that it is one-dimensional (explained variance = 72%). With a cutoff point of 10, adequate values of sensitivity (86.8%) and specificity (93.4%) are shown (Garcia-Campayo et al., 2010). The Post-Traumatic Stress Disorder (PTSD) Checklist (PCL-5), a self-report measure for the 17 DSM-IV symptoms of PTSD (Blanchard et al., 1996), was also applied. Sample items include, "In the past month, how much were you bothered by repeated, disturbing dreams of the stressful experience?" and "In the past month, how much were you bothered by trouble remembering important parts of the stressful experience?" The adaptation to the Spanish-speaking population shows an adequate fit to the original model. It also shows adequate internal consistency, with Cronbach's alpha of 0.97, and appropriate convergent validity (Durón-Figueroa et al., 2019).

For substance use, we administered the Alcohol Use Disorders Identification Test (AUDIT), a screening developed by the World Health Organization (WHO) (Bohn et al., 1995). The AUDIT is a 10-item self-administered questionnaire with scores ranging between 0 and 40 points. Sample items from the self-report version are "How often do you have a drink containing alcohol?" and "Have you or someone else been injured because of your drinking?" The Spanish version shows adequate internal consistency, with Cronbach's alpha of 0.75 (Carretero et al., 2016). We also applied the Drug Abuse Screening Test 10 (DAST-10), which is a self-administered questionnaire with dichotomous (Yes/No) answers designed to identify subjects with problematic drug use. Its items include issues related to aspects of substance use as well as the resulting physical, psychological, and social complications (Yudko et al., 2007). The Spanish adaptation of the test shows excellent internal consistency ($\alpha = 0.89$) and good psychometric properties (Gálvez & Fernández, 2010). Finally, the Fagerström Test for Nicotine Dependence was also applied. This is a six-item instrument that evaluates the amount of cigarette consumption, the compulsion to smoke, and smoking dependence (Heatherton et al., 1991). This test has also been translated into Spanish (Becoña & Vázquez, 1998), and its psychometric properties with a Spanish-speaking population are adequate (Roa-Cubaque et al., 2016).

Sociodemographic data and care attendance indicators were obtained through a semi-structured interview specifically developed for this research. Country of origin, socioeconomic level, and cohabitation with a partner were collected as sociodemographic data. The attendance indicator was divided into four levels: having attended all scheduled appointments, having attended more than half the scheduled appointments, having attended fewer than half the scheduled appointments, and having attended none of the scheduled appointments.

Statistical Analysis

Pearson's correlation analyses were calculated based on care attendance indicators, sociodemographic data (country of origin, socioeconomic level, and cohabitation with partner), and results of the battery of mental health and substance use questionnaires. Further analyses to study differences between groups (women who attended and women who missed appointments) or relationships between variables (as for example mediation, moderation or others) could not be calculated because of the marked differences in sample size.

Results

The final sample was formed by 170 women at risk of dual pathology without specialized mental health treatment, most of them from Spain ($N = 122$, 71.7%). Of these, there was missing information for attendance levels in seven cases.

Attendance level within the sample was high, with 152 women ($N = 163$, 93.2%) reporting having attended all scheduled appointments. Descriptive data on depression, anxiety, and PTSD can be found in Table 1.

Pearson's correlation was significant for the relationship between attendance level and socioeconomic level (0.184, $p = 0.024$) and significantly negative for the relationship

Table 1 Mental health questionnaires results

	N	Percent
Depression (PHQ-9)a		
Negative (0–4)	40	23.5%
Mild depression (5–9)	68	40.0%
Moderate depression (10–14)	41	24.1%
Moderately severe depression (15–19)	16	9.4%
Severe depression (20–27)	5	2.9%
Positive (PHQ-9 > 10)	62	36.5%
Generalized anxiety (GAD-7)		
Negative (0–4)	70	41.2%
Mild anxiety (5–9)	65	38.2%
Moderate anxiety (10–14)	22	12.9%
Severe anxiety (15–21)	13	7.6%
Positive (GAD-7 > 10)	35	20.6%
PTSD (PCL)b		
Negative	138	81.2%
Positive (PCL > 33)	32	18.8%

a, data not available for one woman; b, 5 women did not report traumatic events. Adapted with permission from Carmona Camacho, R., Carpintero, N., Barrigón, M., Nogales, C., Menéndez, I., Alonso, M., Caro-Cañizares, I., Aguado, J., Cook, B., Alegria, M., Cornudella, R., Plaza, J., and Baca-Garcia, E. (2021). Salud mental, abuso de sustancias y trastornos duales en el embarazo: Tasas de prevalencia y tratamiento en un país desarrollado. *Adicciones*, *0*. https://doi.org/10.20882/adicciones.1568

between attendance level and depression (−0.174, $p=0.034$), post-traumatic stress symptoms (−0.214, $p=0.011$), and alcohol reporting (−0.259, $p=0.045$). See Table 2.

Discussion

Pregnancy is a period in a woman's life that requires close monitoring and regular health care in order to minimize preventable complications. Maternal dual pathology during pregnancy can make health care access difficult, a relationship that the research to date has barely explored. In line with previous research in Spain (Herrera de la Muela et al., 1999), results showed that failure to attend appointments is infrequent among pregnant women in our area of study. However, when it does occur, it is related to specific conditions of dual pathology in pregnant women that may limit these women's access to adequate obstetric care.

Relationship Between Attendance Level and Socioeconomic Level

In the present study, a lower socioeconomic level has been found to be related to lower attendance levels. Unfortunately, lower socioeconomic levels have historically been reported as risk factors for general care attendance (Bohren et al., 2014). In Spain, since there is a public health system, socioeconomic differences are generally not a barrier in and of themselves (as an affordability issue), but they seem to be related to hidden economic impediments (e.g., can't take time off work), cultural issues (Herrera de la Muela et al., 1999), and prejudices on the part of both patients and health providers. Given the critical importance of access to health care during pregnancy, health care institutions should focus attention on this subject to ensure universal access to care. Additionally, specifically during pregnancy, health care providers should make an effort to bring at-risk women into perinatal care by paying special attention to their needs.

Relationship Between Attendance Level and Dual Pathology

Results have shown an association between lower obstetric care attendance and higher levels of depression, post-traumatic stress symptoms, and alcohol use. Due to the serious complications associated with dual pathology during pregnancy, women with dual pathology should receive closer monitoring; however, our results indicate that they are at higher risk for missing appointments.

Explanations could be related to lower levels of self-care among these women. Missed appointments could be the result of their own prejudices related to the mistaken belief that alcohol use is a choice and not a disease, as well as to the reported tendency of women with high alcohol consumption to be less likely to seek help (Schober & Annis, 1996).

Depression, anxiety, and PTSD are the most common disorders associated with substance use disorders (McGovern et al., 2006), and the prevalence data found in our sample supports the relationship. In addition, depression and PTSD, in conjunction with substance use, appear to be associated with an increased risk of lower attendance levels. This association could be explained again on the basis of personal issues of the women with dual pathology themselves. While anxiety symptoms tend to favor help-seeking, depressive and PTSD symptoms can, by their very nature, make it difficult for those who suffer to ask for help (Khenti et al., 2019).

Table 2 Correlation analyses

Variable		1	2	3	4	5	6	7	8	9	10
1. Attendance	*r*	1									
	p										
2. Country of origin	*r*	−.036	1								
	p	.660									
3. Cohabitation with partner	*r*	−.030	.007	1							
	p	.725	.929								
4. Socioeconomic level	*r*	.184*	.121	.163*	1						
	p	.024	.131	.048							
5. PHQ-9	*r*	−.174*	−.338**	−.140	−.343**	1					
	p	.034	.000	.093	.000						
6. GAD-7	*r*	−.102	−.222*	−.072	−.169	.638**	1				
	p	.263	.012	.441	.059	.000					
7. PCL-5	*r*	−.214*	−.206*	−.154	−.295**	.488**	.358**	1			
	p	.011	.013	.072	.000	.000	.000				
8. AUDIT	*r*	−.259*	.166	.054	−.082	.204	.336*	.043	1		
	p	.045	.195	.655	.526	.114	.039	.751			
9. DAST	*r*	.193	.439	.407	−.014	.022	.005	.000	.383	1	
	p	.459	.078	.105	.957	.936	.987	1	.177		
10. Fagerström test	*r*	−.075	.050	.177	−.083	.132	.044	.066	.222	−.182	1
	p	.545	.681	.148	.504	.288	.766	.602	.169	.593	

r, Pearson's correlation; *$p < 05$, **$p < 01$ two-sided *t*-test

PHQ-9, Patient Health Questionnaire; *GAD-7*, Anxiety Disorder 7-item screener; *PCL-5*, Post-Traumatic Stress Disorder Checklist; *AUDIT*, Alcohol Use Disorders Identification Test; *DAST*, Drug Abuse Screening Test

Nevertheless, pregnancy is generally associated with higher levels of motivation to seek clinical attention, so we must also focus on other aspects. Social criticism or stigma —even when subtle, indirect, or unintentional — related to dual pathology during pregnancy could be keeping at-risk women from attending appointments (Guilfoyle et al., 2008).

Thus, initial contacts with care providers could be used for primary detection and starting specific treatments when needed. The showing of unwavering acceptance and genuine empathy by care providers, along with their using motivational interview techniques, could be the factors needed to improve the situation.

About the Research Question

Our results show that there are some particular conditions of dual pathology in pregnant women that may be risk factors for inadequate obstetric care among women with such dual pathology. The co-occurrence of alcohol use with depression and/or PTSD is a condition that seems to limit access to adequate obstetric control among women with dual pathology.

Limitations

Despite the moderated relevance of the results, conclusions should be drawn carefully. Only women considered at risk for dual pathology were included in the study, and attendance levels reported were extremely high, which made comparison analyses impossible; results could be masking other relevant factors. In addition, as all measures taken are self-reported, results could be biased. Future investigations to replicate results, control extraneous variables, and elucidate how care provider attitudes could prevent missed appointments are warranted.

Conclusions and Implications

Missed obstetric appointments among pregnant women with dual pathology are not frequent, but when they occur, they could be related to more severe levels of dual pathology.

This explanation seems to be related both to issues specific to pregnant women with dual pathology and to issues of social stigma.

Initial contacts with care providers are essential for detecting women at such risk and providing them with adequate care. Showing unwavering acceptance and using motivational interview techniques could help, but further research is called for to explore best practices for providing access to prenatal care for women with dual pathology.

Author Contribution All authors whose names appear on the submission made substantial contributions to the conception of the work, analysis, or interpretation of data; drafted the work or revised it critically for important intellectual content; approved the version to be published; and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Data Availability Collected data are available if requested.

Declarations

Ethics Approval The study was carried out in compliance with the Declaration of Helsinki and approved by the Local Ethics Committee.

Consent to Participate and to Publish Informed consent was obtained from all individual participants included in the study.

Employment Authors declare no recent (while engaged in the research project), present, or anticipated employment by any organization that may gain or lose financially through publication of this manuscript. This includes multiple affiliations when applicable.

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