SCREENING OF SUBSTANCE ABUSE AMONG WOMEN IN PERINATAL CARE

Tazanu Fossung Joakem

Kwame Cudjoe

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Screening of Substance Abuse Among Women in Perinatal Care

Tazanu Joakem Fossung
Kwame Cudjoe
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The purpose of this review was to describe contemporary screening methodologies and processes for determining the substance abuse status of perinatal women using recent literary works. It also outlines potential innovations to improve the screening process and subsequent treatment of the aforementioned. The study was undertaken as part of the Kuitinmäki project in Laurea University of Applied Sciences. This study sought to answer the research question: What is entailed in the screening of substance abuse among perinatal women by nurses?

A literature review was the research methodology used for this study and the literature search was mainly sourced from articles, journals, books and reports retrieved with the aid of electronic databases such as EBSCO (CINAHL), EBSCO (Academic Search Elite) and Pubmed. The literature search was facilitated through the use of specified keywords as guiding parameters. Data selection from the literature search was based on significance to the research task and thereafter, selected data (literary sources) was analysed using an inductive content analysis approach to further streamline and perfect the findings.

The findings suggest that a comprehensive assessment is the acceptable way for nurses to detect and draw up a comprehensive care plan for substance abusing perinatal women. The screening process can be further improved by incorporating a dual pronged approach to screening perinatal women for substance abuse. This should include the conventional screening techniques (e.g. questionnaires) and clinical testing methods such as the use of biomarkers.

Nurses and other health care practitioners are also expected to familiarize themselves with the appropriate screening methods and tools, by keeping in mind the limitations or inaccuracies of the different screening tools.

Certain recommendations for health interventions such as for the nurses to create a conducive environment for the screening process and by applying the philosophy of harm reduction which supports and encourages even the smallest improvements, could significantly improve the screening process and the results. The findings of this study also denote a paucity of literature works and research done to fully assess the situation concerning the screening of substance abuse among perinatal women and suggests that more research should be carried out in this particular field, to incorporate new solutions so as to enhance the operations of nurses and other health care practitioners to enable them provide quality holistic care to perinatal women and their families.

Keywords: Substance abuse, Perinatal care, pregnant women, screening
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Introduction

Pregnancy provides a window of opportunity for the screening of substance abuse by nurses and other health care professionals. Screening can be defined as the process of evaluating and determining the presence of a particular problem. It often is the initial contact between a woman and the treatment system, and the client forms her first impression of treatment during screening and intake.

How screening is conducted can be as important as the actual information gathered, as it sets the tone of treatment and begins the relationship between the client and the nurse. So it is imperative to update nurses’ knowledge while outlining the role they play in the screening process.

The main idea behind substance abuse screening of perinatal women is to identify those particular women who have, or are developing substance abuse problems so as to prevent or limit damages to themselves or their babies. In this way, health professionals can establish whether these perinatal women need further assessment and consequent treatment. The essence of assessment is to put together all the necessary information required for a treatment plan that meets the individual needs of each perinatal abuser.

Screening of substance abuse among perinatal women involves asking carefully crafted questions, in order to determine whether an in depth evaluation for a disorder or particular problem is needed. Based strictly on gender, fewer women can be identified as having a substance abuse problem as compared to their male counterparts, yet women experience and exhibit more significant health problems following substance abuse within a shorter period of time than men (United Nations Office on Drugs and Crime, 2004).

These days unfortunately and increasingly so, substance abuse is becoming more common during pregnancy. For example national prevalence surveys in Canada suggest that about 14% of women admitted to using alcohol during their last pregnancy, while 17% confirmed they were smoking during pregnancy (Wong, Ordean and Kahan, 2011 p.368). Similarly in the USA, it is observed that there is an increase in the incidence of substance abuse among pregnant women. More than 50% of the respondents to a National Institute on Drug Abuse Household Survey aged between 18 to 35 years, admitted to alcohol use within the last month of pregnancy and about 5% admitted to the use of illicit drugs within the same period.
The importance of substance abuse screening in perinatal women cannot be overemphasized given the fact that the abuse of substances is more prevalent than previously thought, with up to 25% of pregnant women in the USA using illicit drugs. Once substance abuse during pregnancy is detected, the nurse and other health practitioners could be facing challenging issues such as foetal and maternal complications. Perinatal women often undergo prenatal and postpartum checkups and this provides nurses and other health care practitioners a unique window of opportunity for the detection and treatment of substance abuse. These checkup sessions not only allow for more frequent access to health care for these perinatal women, but also increases the motivation of substance abusing perinatal women to adhere to a treatment plan. Starting from the uterus, substance abuse exposure negatively impact neonates and can plague them throughout their life time. Although most pregnant women are not guilty of substance abuse, combined data from the National survey on drug use and health from 2008 to 2009 in the USA, found out that substance abuse is most prevalent among younger perinatal women who reported a greater use of licit and illicit substances (United Nations Office on Drugs and Crime, 2004). More work has to be done to fully grasp the situation and negative impact of substance abuse on perinatal women and their families which is not necessarily easy because of a myriad of factors such as insufficient resources of health services, tentativeness of such women to divulge details of their substance abusing lifestyle and their fear of stigmatization (United Nations Office on Drugs and Crime, 2004). A comprehensive screening program (tailored for perinatal women) to a large extent can be instrumental to curbing or mitigating the incidence of some of these problems.

The Purpose Statement And Research Questions

1.1 Purpose Statement

The primary aim of this review was to showcase updated knowledge in the contemporary screening of substance abuse among perinatal women, while exploring the perinatal substance abuse screening process, the screening methods, their effectiveness or lack thereof and recommendations for better substance abuse screening and management results among perinatal women.

Following the Cochrane handbook for systematic literature review on the specific ranges for identifying purpose statements (http://Cochrane-handbook.org/), this paper was directed towards the enhancement of the quality of knowledge of the main topic.
1.2 Research Question

What is entailed in the screening of substance abuse among perinatal women by nurses?

Not only might the answers to this question improve our understanding and help promote better substance abuse screening techniques, it might also directly improve the management of substance abusing pregnant women and offer better chances for the protection of their foetuses.

Definition Of Key Concepts

To ensure a proper comprehension of substance abuse as a phenomenon and its consequent relation to screening susceptible perinatal women, it is necessary to define the following terms.

1.3 Substance Abuse

This refers to “the harmful or hazardous use of psychoactive substances including alcohol and illicit drugs” (WHO 17 Feb, 2013). The initiation and subsequent experimentation into the use of alcohol and drugs typically happens during adolescence (Johnston, O'Malley, Bachman, & Schulenberg, 2013). The use of psychoactive drugs often causes dependency syndrome in perinatal women which results in behavioural, psychological and cognitive eccentricity and repetitive addiction as the harmful effects. In perinatal women, substance abuse causes premature births, FAS (Fetal Alcohol Syndrome) in neonates and underweight/deformed babies etc.

1.4 Substance Dependence

A natural corollary to substance abuse is substance dependence. WHO (2013) defines substance dependence as “A pattern of behavioural, physiological and cognitive symptoms that develop due to substance use or abuse, usually indicated by tolerance to the effects of the substance and withdrawal symptoms that develop when the use of the substance is terminated”. Substance dependence may be diagnosed in the perinatal woman who persists in the use of a particular substance, despite problems related to its use.
1.5 Misuse

The misuse of prescription drug is ideally depicted in the scenario whereby the perinatal woman consumes and abuses prescription medication that may have been obtained illegally/legally, with/without the prescription of a medical professional. Normally, benzodiazepines are abused or strong pain medication like OxyContin. Any use of drugs aside the recommended dosage and/or prescriptions by a certified doctor translates to the misuse/abuse of the drug. This may include under dosage, over dosage, reduced or prolonged use, too frequent or infrequent use (Taylor, Bailey, Green, & McCully, 2012).

This refers to the diminishing effects after the continued use of the same amount of substance/drug, or a need for markedly increasing amounts of the substance/drug to achieve the desire effects (Wong et al., 2011 p.370). The development of tolerance can be problematic even for patients using prescription medication, as it reduces the effectiveness of the drug and this can be especially dangerous for drug addicts because they will take increasingly larger doses to get the same effect, potentially leading to an overdose. Although many tolerance producing drugs also have addictive potentials, the development of tolerance is not necessarily addiction.

1.6 Addiction/ Addictive Process

Drug addiction refers to the dependence on a prescribed medication or illegal substance. Addiction causes an intense craving for the drug and makes it virtually impossible to control drug use/intake despite the harm they may cause. Mostly starting as a casual experiment, drug use and eventually addiction may have long lasting consequences leading to physical and mental health problems, broken or failed relationships as well as trouble at work, school or with the law for these perinatal women (WHO, 2013). The addictive process is a complex yet progressive behavioural pattern that involves sociological, psychological, biological and behavioural components. The affected person faces a pathological attachment to the substance being abused which limits their ability to control or stop the use of the substance (Taylor et al., 2012, p. 2).

Research Method

The Literature Review was the primary research method for this thesis work. The literature review is said to be the replica of scientific and transparent processes that aims to minimize bias in a research work through exhaustive literature searches of published and unpublished studies and by providing an audit trail of the reviewer’s decisions, procedures and conclusions.
(Tranfield, Denyer, & Smart, 2003, 207-222). Literature reviews have been found to be a fundamental component to improving the daily practice of nursing and other health care disciplines primarily because of a reliance on a rigorous and systematic evidence based approach which is officially termed as Evidence Based Nursing (EBN) (Aveyard, 2010). For a novice researcher embarking on a research work, Aveyard (2010) recommends the formulation of a research question, strategic and explicit presentation of results as well as a comprehensive discussion of the results or findings. Aveyard (2010), places particular emphasis on the need for a systematic order of doing things in the research as well as sticking to an empirical process in order to come out with valid results capable of use in an evidence based practice. Holloway & Wheeler (2009) states that the primary aim of a literature review is to communicate to readers already corroborated knowledge on a topic, the strengths and/or limitations of this knowledge, as well as contemnorize readers on relevant present day research on that topic which may include differing opinions from previous research results with regards to the topic of concern.

This method of researching was chosen for this study, to assist in pinpointing present day information on the thesis topic; the vital concepts and theories of the subject area; research methodologies which had been utilized previously and also to seek to clarify enigmas in this subject area.

1.7 Data Collection

The process of collecting data for this thesis as well as its final synthesis revolved around a literature search, screening of literature, data extraction and data analysis.

1.7.1 Literature Search

Literature search is a systematic method of data collection that involves the identification and examination of relevant research reports, published papers and books among others (Aveyard, 2010). To reemphasize, in the literature search for this thesis, and in order to capture the quintessential aspects of the topic and research questions, there was a need for the adherence to a systematic approach. The first step for the literature search was the identification of relevant literature sources such as journals, articles and research reports that were related to the “screening of substance abuse among perinatal women”. Electronic databases and internet search engines proved to be viable sources of literature and also noteworthy, was the use of Laurea University of Applied Sciences’ library in the quest to come up with credible literature works. Electronic databases used in the literature search included: EBSCO (CINAHL), EBSCO (Academic search elite), Elsevier Science Direct, Ovid (Medline), Medic, Pubmed, Sage, Helka and Google Scholar.
### Table 1. Summary of the electronic databases utilized

<table>
<thead>
<tr>
<th>Electronic databases</th>
<th>Possible Relevant sources</th>
<th>Rejected Sources</th>
<th>Sources not in English</th>
<th>Incomplete Sources</th>
<th>Broken/Non-Functioning Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBSCO (CI-NAHL)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBSCO (Academic Search Elite)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elsevier Science Direct</td>
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<td></td>
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<tr>
<td>Medic</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ovid (Medline)</td>
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</tr>
<tr>
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<tr>
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<tr>
<td>Helka</td>
<td>X X</td>
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</tr>
<tr>
<td>Google Scholar</td>
<td>X X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

In the above table, a depiction is made of electronic sources which were considered and those sources which were later rejected for one reason or another are shown by the (X) mark. To enhance the accuracy of the search process, a combination of keywords were adopted to create a search strategy in what is considered to be the Boolean Search Method so as to facilitate the location of relevant literature works to the thesis topic. So for instance, a combinations of keywords such as ("Substance Abuse" And "Screening Perinatal women") were utilized. Another example of this search method is the use of the keywords combination ("Substance Abuse" AND "Screening Perinatal Women" AND "Health Interventions"). This method of literature search helped to retrieve the most relevant materials regarding screening of substance abuse among perinatal women. The table below gives a further depiction of the above process. Again in situations whereby articles found on databases were incomplete, Google was used to retrieve the complete article. The table also shows the number of hits obtained using the different combinations of keywords.
<table>
<thead>
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<th>Search Word(s)</th>
<th>EBSCO (CI-NAHL)</th>
<th>EBSCO (Academic Search Elite)</th>
<th>Elsevier Science Direct</th>
<th>Ovid (Medline)</th>
<th>Pubmed</th>
<th>Sage</th>
<th>Helka</th>
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<td>119</td>
<td>2369</td>
<td>3710</td>
<td>149</td>
<td>677</td>
<td>504</td>
<td>1</td>
<td>159</td>
</tr>
<tr>
<td>“Substance Abuse” or “Drug Abuse”</td>
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<td>214455</td>
<td>165649</td>
<td>62054</td>
<td>364841</td>
<td>0</td>
<td>540</td>
<td>17600</td>
</tr>
<tr>
<td>“Substance Abuse” or “Drug Abuse” and “Screening in Perinatal women”</td>
<td>29573</td>
<td>15424</td>
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<td>85</td>
<td>704</td>
<td>0</td>
<td>0</td>
<td>211</td>
</tr>
<tr>
<td>“Substance Abuse Screening in Perinatal Women” AND “Nursing Interventions”</td>
<td>24</td>
<td>675</td>
<td>958</td>
<td>3</td>
<td>104</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2. Summary of literature search results

1.7.2 Literature Screening

Screening of data retrieved from the literature search was done to decide which literature sources could be included and which had to be excluded. Criteria for this classification can be seen below and the basis for this classification process was made on concepts deemed to be an integral part of using the literature review research methodology.
Table 3. Inclusion and Exclusion Criteria

<table>
<thead>
<tr>
<th>INCLUSION CRITERIA</th>
<th>EXCLUSION CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sources Not more than 10 years old (2002-2012)</td>
<td>Sources Older than 10 years (2001 and below)</td>
</tr>
<tr>
<td>Sources in English</td>
<td>Sources not in English</td>
</tr>
<tr>
<td>Empirical Research Work</td>
<td>Speculative Research</td>
</tr>
<tr>
<td>Related to our Key Concepts</td>
<td>Unrelated Materials with regards to our Key Concepts</td>
</tr>
<tr>
<td>Full Text materials</td>
<td>Incomplete or Abstract Materials</td>
</tr>
</tbody>
</table>

Literature works were screened in two stages during the literature search. Combinations of some keywords searches resulted in hits in the excess of tens of thousands of articles. For instance, in the situation whereby the keywords "Substance Abuse" OR "Drug Abuse" were used thousands of hits of articles came up. After trying several combinations of keywords in the search, these keyword combinations "Substance Abuse" AND "Screening Perinatal women" & "Substance Abuse" AND "Screening Perinatal Women" AND "Health Interventions" proved to be the most useful. Consequently, the number of hits from the aforementioned searches was more concise and tailored to suit integral concepts of the research topic and questions. These searches produced over 100 potential articles. These 100 or so articles were further scrutinized using their titles and abstracts to get 10 articles which for the most part fulfilled the conditions of the inclusion criteria and was congruent to the purpose statement and research questions. These 10 articles were saved in Nelli and printed out for further reading and scrutiny. Some exceptions were made for articles older than 10 years provided they contained relevant information and had been cited by present day literature works/sources.

1.8 Data Extraction

The different data extracted were primarily from the 10 selected articles. For a particular data to be extracted, it meant that the article it was extracted from met the inclusion criteria first and foremost, and this data was relevant to the purpose statement and research questions. The selected 10 articles from where the data was collected are listed in the Appendices using categorization (see appendix 4) such as:

- Author & Year of publication
- Database source
1.8.1 Data Analysis

To expedite the analysis process of findings from the final literature materials, an Inductive Content Analysis procedure was employed and utilized. This technique primarily helps in an objective, systematic and qualitative description of data retrieved and compiled from various literary sources (Aveyard, 2010). For this reason, it is vital to have a full grasp and understanding of the selected literature materials to enable one to successfully identify similar themes and categorize these themes in groups relevant to one’s purpose statement and at the same time fulfill the requirements posed by the research questions of the thesis (Holloway & Wheeler, 2009).

The selected 10 articles were read thoroughly several times with special attention given to the focal aspect of the purpose statement and research questions. Relevant information to the research topic and question were coded using letter and number combinations such as ‘A1’ & ‘B2’. Colours were sometimes also used in this sorting process. Descriptions and short notes were made in the printed out articles and these were used to create the themes of the thesis. The descriptions provided a concise summary of each article and its relevance and connection to the other articles. This was fundamental to the aggregation process since similar extracted expressions were then grouped together and then given a befitting classification/group name.

A further synthesis of this new group of extracted expressions was done using the procedure described above in order to yield a more definitive and final major category of themes relevant to the thesis topic and research questions. This last synthesis of data was to ensure a
final clarification of each particular phenomenon and its specific category of relevance. Final names for major themes depict a commonality of content among its various composites.

Three main classification themes were eventually created; Comprehensive Assessment/Screening, Limitations to substance abuse Screening in Perinatal women and Recommendations and Health Interventions for Perinatal substance abuse. The main aim of the qualitative analysis of data is to interpret the accumulated data or information so as to arrive at a logical conclusion (Holloway & Wheeler 2009). To give an example of the analysis process for this thesis, the sub-theme of “Substance abuse Risk Factors in perinatal women” was created when a group of extractions containing phrases indicative of the various aspects of “History of Family member/Partner substance abuse”, “Lack of Family Involment” and “History of having other psychological problems” were put together.

Using the same approach. These similar sub-themes were then brought together to form the first main theme “Comprehensive Assessment/Screening”. A similar process was followed to arrive at the second and last themes consecutively; “Limitations to substance abuse Screening in Perinatal women” and “Recommendations and Health Interventions for Perinatal substance abuse”. The figure below depicts the data analysis process.
**Extracted Data**

- History of Family member/Partner substance abuse, Lack of Family Involvement, History of having other psychological problems
- Screening questionnaires (T-Ace, TWEAK, CAGE, SASSI-3), Biomarkers (EtG, Ets, PEth, FAEEs), Nurses’ Screening Skills, Indicators for Testing, Nursing Intervention, The Philosophy of Harm Reduction

**Sub-Themes**

- Substance abuse Risk Factors in perinatal women
- Universal Screening of Substance Abuse in perinatal women
- Socio-Cultural Limitations to substance abuse screening in perinatal women
- Limitations to Substance Abuse Testing Tools

**Main Theme**

- Comprehensive Assessment/Screening
- Limitations to substance abuse Screening in Perinatal women
- Recommendations and Health Interventions for Perinatal substance abuse

**Substance abuse** legislation, Fear of punitive measures, Fear of stigmatization, Fear of losing child custody, Cultural sensitivity, Linguistic barriers

Unreliable screening questionnaires, Ineffective drinking risk identification, False negative results for urine and meconium, False positive results for hair test

Establishment of good rapport between staff and client, The philosophy of harm reduction, Training of staff in screening and interview techniques, Substance abuse advisory services, Multidisciplinary team approach, Informed consent of clients, Importance of addressing substance abuse during pregnancy

Recommended routine screening, Recommended periodic screening of pregnant women, Recommendations for a more flexible screening approach, Screening of STD’s and HIV if there is history, Screening and treatment of perinatal depression

**Health Interventions for substance abuse management**
1.9 Comprehensive Assessment / Screening

The goal of substance abuse screening is to identify women who have or are developing alcohol or drug-related problems. Screening Tools as a methodology coupled with a background check of the patient's medical history, are deemed to be the most effective ways to verify the susceptibility of perinatal women to substance abuse (Bearer et al., 2003). The selection of the tools may be based on various factors, including cost and administration time, but the decision to use an interview versus a self-administered screening tool should also be based upon the comfort level of the counselor or healthcare professional (Thornberry et al. 2002). If the healthcare staff communicates discomfort, women may become wary of disclosing their full use of substances.

Assessment or screening of the patient is one of the critical elements of effective treatment, and it is the first stage of the treatment process.

A comprehensive assessment or screening process uses systematic and extensive procedures that determine and evaluate the severity of the substance abuse problem, obtains information about cofactors, and assist in developing treatment and follow up plans. Also, an employment of a comprehensive assessment or screening process by the nurse will translate to not only screening for substance abuse per se, but also probing into related problems areas of the patient (McLellan & Dembo, 1992) as cited by (Lucenko, Malow, SanchezMartinez, Jennings, & Dévieux, 2003), which may include:

- Overall medical status and problems of the perinatal woman (including general health conditions as well as virulent diseases like HIV, tuberculosis and sexually transmitted diseases.
- Psychological status and possible psychiatric disorders.
- Social functioning; family and peer relations.
- Educational and work behavioural record.
- Criminal/delinquent behaviours.
- Legal problems.
- Socioeconomic status and problems if present.
Results from the comprehensive screening/assessment process should be documented to facilitate clinical case supervision. This information will form the basis of a treatment plan. This plan must consider the unique constellation of problems and other factors that have been identified for each perinatal woman. The plan will propose a course of action that attempts to address the unique needs of each perinatal woman. Implementation of the plan will involve referrals to the relevant treatment programs as well as incorporate regular checkups to monitor progress. The treatment plan can take a single modality approach or incorporate an integrated treatment approach (McLellan & Dembo, 1992) as cited by (Lucenko et al., 2003). Lucenko et al. (2003) say that there are three steps in a comprehensive screening process; information gathering through interviews (questionnaire format) or laboratory works is considered to be the first and foremost in these steps.

Screening for substance use disorders is conducted by an interview or by giving a short written questionnaire. It often is the initial contact between a woman and the treatment system, and the client forms her first impression of treatment during screening and intake. There are several risk factors associated with the susceptibility of substance abuse among pregnant women and nurses or other health care professionals need to pay more attention in the screening of perinatal women who present some of these risk factors (Mayo Clinic, Oct. 2011).

1.9.1 Risk Factors for substance Abuse in Perinatal Women

There are some risk factors associated with the susceptibility of substance abuse among pregnant women. These risk factors may include: Having a family history of addiction, presenting other psychological problems, lacking family support or involvement. Nurses and other health care professionals need to pay more attention in the screening of perinatal women who present some of these risk factors (Mayo Clinic, Oct. 2011). In this section we sought to throw more light on these risk factors which often but not always predispose perinatal women to substance abuse.

1.9.1.1 Family/Partner History of Addiction

Drug addiction is more common in some families and likely involves the effects of many genes. If the perinatal woman has a blood relative, such as a parent, sibling or even a partner, with alcohol or drug problems, she is at a greater risk of developing a drug addiction.
1.9.1.2 Having Other Psychological Problems

Having another psychological problem, such as depression, attention-deficit/hyperactivity disorder or post-traumatic stress disorder, increases the chances for the woman to become dependent on drugs.

1.9.1.3 Lack of Family Involvement

A lack of attachment with parents and other siblings may increase the risk of addiction, as can a lack of partner supervision. This results in the fact that the woman may have to deal with issues of loneliness, depression and anxiety alone. Even the disintegration of family such as by death or divorce may increases the likelihood of substance abuse (Mokdad AH, Marks JS, Stroup DF, Gerberding JL, 2004)

1.9.2 Universal Screening

Universal screening ensures that the nurse is provided the opportunity to discuss the risks of illicit drugs, tobacco, alcohol and other substance abuse problems with perinatal women on a routine basis. "Educated guessing" which may rely on the nurse’s attitudes and biases can be overcome through structured or comprehensive screening which is included in the care of every perinatal woman. The practice of universal screening increases the likelihood of identifying substance users and allows for the earliest possible intervention or referral to specialized treatment. Additional screening and education of every client enhances public awareness of the risks of substance use/abuse during pregnancy and may prevent use/abuse in future pregnancies (Taylor et al., 2012).

1.9.2.1 Substance Abuse Screening Tools for Pregnant Women

Screening Tools as a term alludes to an array of different things, it can refer to clinical methods such as blood tests or urine toxicology tests or to noninvasive methodologies for ascertaining the presence of substance abuse in perinatal women such as routine answering of structured questionnaires on each perinatal checkup visit to the doctor (Virginia Department Of Behavioral Health And Development Services, 2011).

Most substance abuse screening instruments are designed to identify problematic use rather than just use; however, if a woman is pregnant, any substance use is problematic. Screening Tools as a methodology coupled with a background check of the patient’s medical history, are deemed to be the most effective way to verify the susceptibility of perinatal women to substance abuse (Bearer et al., 2003). Again, assessment or screening of the patient is one of the
critical elements of effective treatment, and it is the first stage of the treatment process. Interview based or self-administered screening questionnaire tools are an effective way to determine risk or allow for self-reporting since they are considered as routine in perinatal care provision. According to the American College of Obstetricians and Gynaecologists (2011), brief questionnaires have demonstrated effectiveness in screening for alcohol and drug use during pregnancy; some of these tools take 5 minutes or less to go through.

The purpose of the screening should be to begin an open discussion about alcohol and drug use especially when screening is interview based or self-administered questionnaires. The commonplace practice is to have a mandatory question answer session on each maternal visit to the doctor’s office. This is carried out regardless of whether there is a suspicion or not of the likelihood to abuse substances in the perinatal woman. Most interview screening tools are chosen for their brevity, validity, specificity, and sensitivity in detecting alcohol and drug problems and they cater to different substance abuse problems. For instance TACE questionnaire caters to alcohol abuse without considering drug abuse. On the other hand, 4 P’s Plus is an interview tool which covers both alcohol and drug abuse screening.

It is also worthy to note that clinical methods exist which are used postnatally to detect substance abuse. These categories of screening tools are relevant because they help to detect and subsequently deter recurrent substance abuse in the patient, should she get pregnant again. Interview techniques and screening instruments may be designed to attempt to get alcohol or drugs involved persons to reveal information about their substance abuse. These self-administered reports can be helpful in determining whether there is a need for further scrutiny of the patient and intervention. There are quite a number of different substance abuse screening tools, but the most commonly used and recommended screening tools/questionnaires for perinatal women are: T-Ace, TWEAK, CAGE and SASSI-3 and 4Ps (See appendices 1 and 3).

1.9.2.2 Clinical Screening Tools / Biomarkers

Atypical to the conventional screening tools such as questionnaires or interviews, clinical screening tools employ invasive methods to test for the presence of substance abuse among perinatal women. Clinical screening methods can be used both prenatally and postnatally for the aforementioned purpose (Bakhireva & Sava, 2011). In recent times, biomarkers as clinical screening tools are considered avant-garde in this area of screening for substance abuse. Biomarkers as a term can be defined as basically the science of detecting traces elements of illicit/licit substances using body secretions of the patient. In the case of perinatal women, these elements may evident in the course of the pregnancy or after the birth of the neonatal.
An ideal biomarker for detecting alcohol use among pregnant women for instance, should have the following attributes:

- The capacity to detect low to moderate levels of drinking over extended periods of time after the last drinking episode.
- A high probability of accurately detecting drinking that occurred during pregnancy (i.e., high sensitivity).
- A low rate of false positive test results (i.e. high specificity).

In addition, important technical considerations for a biomarker testing include:

- A biological sample easily obtained by a minimally invasive and clinically acceptable.
- A procedure that requires little or no sample preparation.
- A simple, relatively inexpensive analytical procedure that provides rapid results, ideally in a point of care setting (Bakhireva & Savage, 2011).

Literature works attest to the significance of biomarkers in screening for substance abuse; in certain cases they were proven to be more effective than the conventional screening methods (interview based or self-administered questionnaires). Results of a pilot study (Wurst et al. 2008b) in Sweden, indicated that clinical testing for EtG and FAEEs (trace elements of substance abuse) can identify more potential alcohol consumers among pregnant women than the AUDIT questionnaire alone (Kip et al. 2008). PEth and EtG (biomarker tests) combined, were able to identify alcohol consuming patients who scored below the cutoff on an AUDIT questionnaire interview in an emergency room setting (See Appendix 2).

1.9.2.3 Screening Skills and Demeanor

Screening is a skill, and nurses should be trained in interview techniques as well as ethics to ensure a perfection of this skill. Essentially, screening for substance abuse among perinatal women should be routinely performed by trained nurses well versed in the knowledge of substance abuse and pregnancy. This approach tends to reduce subjectivity, discomfort, bias for all involved parties (Roberts & Nuru Jeter, 2010). Ideally, all pregnant women should be screened at every visit or at least once a trimester. As patient nurse trust grows, the likelihood of the perinatal woman to disclose substance abuse also increases. When the patient discloses use of substances, it is vital the nurse is aware that screening tools identify risk and are not diagnostic. Consequently, nurses should be trained and know how to respond in such situations. They should be able to discuss the risks associated with abuse, the benefits of stopping substance abuse, and resources for available further evaluation/intervention. How screening is handled, impacts the perinatal woman’s use of perinatal care services later. If women fear adverse consequences or judgmental attitudes, they often delay or avoid perinatal care services (Roberts & Nuru Jeter, 2010). Also of relevance, is the need to include in-
quiries into substance abuse problems with regards to the perinatal woman's family; this is to ensure a holistic approach in creating a treatment plan and is ethically benevolent.

In summary, the screening process should be carried out in an environment of respect whereby the general tone of the nurse doing the screening is non-judgmental and supportive. It is vital that patient confidentiality is protected and the interview process is culturally relevant. The nurse in charge of the screening procedure (be it interview based/self-administered questionnaire or invasive clinical procedural) should make sure to discuss the benefits of treatment and offer to provide the perinatal woman with a referral to a local substance abuse treatment Centre. Again, the patient's consent should be sort for prior to any screening procedure. This will presuppose that clear and honest communication has taken place between the nurse and the perinatal woman (Kellogg, Rose, Harms & Watson, 2010). In the situation the woman refuses to give consent, the nurse should proceed to enquire if the patient would prefer to take information leaflets for later reading. After this, the nurse in charge of the interview can proceed to schedule the next meeting or perinatal visit. The nurse should continue to maintain interest in the client’s progress and support her efforts in changing (Massey et al., 2012).

1.9.2.4 Indicators for Testing

According to Roberts & Nuru Jeter (2010), nurses must be aware of telltale signs which may depict the presence of substance abuse in perinatal women. These can include frequent absenteeism from routine perinatal checkups; alcohol odor and also the medical history can provide information of a substance abuse past. Below is a table of the common signs and behavioural patterns associated with substance abuse:

<table>
<thead>
<tr>
<th>BEHAVIOUR PATTERNS</th>
<th>PHYSICAL SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedation</td>
<td>Dilated pupil</td>
</tr>
<tr>
<td>Euphoria</td>
<td>Tremors</td>
</tr>
<tr>
<td>Aggressive</td>
<td>Hair Loss</td>
</tr>
<tr>
<td>Paranoia</td>
<td>Hallucinations</td>
</tr>
<tr>
<td>Depression</td>
<td>Increased Body Temperature</td>
</tr>
<tr>
<td>Psychosis</td>
<td>Increased Pulse and Blood Pressure</td>
</tr>
</tbody>
</table>

Table 4. Symptoms of Substance Abuse (Taylor et al. 2012)
1.9.2.5 Nursing Intervention in the Screening Process

It is the responsibility of every hospital or practice to ensure that all perinatal women are screened for substance use or vulnerability to abuse. Physicians, nurses, and others involved in perinatal care play an important role in the reduction of substance use during pregnancy. For perinatal women who require help for substance use, a multi-team approach is recommended; this normally involves the primary health provider, clinic nurse, social worker, public health nurse, chemical dependency treatment provider, and the client herself (Kellogg et al. 2010). Education of this health care team is vital to enable proper client screening; team members must be taught on when and how to screen, how to assist the woman who admits abuse of illicit substances or the one who denies the abuse of substances (Kellogg et al., 2010).

The role of the nurse is precursory to the input from other team members in the multi-team when catering to substance abusing perinatal women since it is the nurse who conducts the actual screening. It goes without saying that, it is vital the nurse plays this role well since this is the first step in drawing up a treatment plan to provide care for such women. Nurses should as a result be properly equipped and knowledgeable about situations whereby the perinatal woman denies or admits to substance abuse.

1.10 Limitations to Substance abuse Testing in Perinatal Women

There are a number of limitations in the substance abuse testing. Both the testing tools and the samples being tested could be the cause of the inaccurate results. Moreso, there are also legal and socio-cultural aspects that may limit authenticity of the clients answers (Taylor et al. 2009). Some important aspects to consider are that:

Negative results do not rule out substance use, a positive test does not necessarily tell how much of a drug is used and a positive test does not identify user characteristics such as intermittent use, chronic use, or addiction.

1.10.1 Socio-Cultural Limitations to substance abuse screening in perinatal women

- The most common limitation as the world is getting more intercultural is the aspect of cultural sensitivity or linguistic barriers
- A woman who knows she will be tested may delay access to prenatal care because she fears potential repercussions. Such repercussions may be legal costing the costudy of her child, or even social whereby she could be stigmatized by her community, friends or relatives.
• False positive results can be devastating for a drug-free client.
• Women may avoid detection by abstaining for 1-3 days prior to testing, substituting urine samples, or increasing oral beverage intake such as water, just before the testing in order to dilute the urine (Wong et al. 2011).

1.10.2 Limitations to Substance Abuse Testing Tools

• Blood tests usually only identify those patients with long term use in whom secondary symptoms have occurred, e.g., liver function tests.
• Urine toxicology has no value in identifying or minimizing the teratogenic effects that occur early in pregnancy.
• Alcohol, which is the most widely abused substance and has the greatest impact on the fetus, is the hardest to detect due to its short half-life.
• Hair analysis could have a false-positive result because of passive exposure to smoke drug in the environment (Wong et al. 2011).

1.11 Health Interventions for substance abuse management

In this section we outline some of the roles of the nurse or other health care providers as well as their philosophy in the management of substance abuse.

1.11.1 The Philosophy of Harm Reduction

Nurses typically apply the philosophy of harm reduction in the screening and management of perinatal women. Harm reduction is a public health philosophy and intervention that seeks to reduce the harms associated with drug use and ineffective drug policies (Rebecca Tiger, 2010). Dixon, Kurtz, & Chin (2008) explains that nurses should as much as possible make sure that susceptible or abusing perinatal women are educated and informed about the availability and benefits of referral and health services. Again, Niccols et al. (2012) advocate for an integrated treatment approach involving various disciplines in caring for perinatal abusers. Components of this philosophy include the encouragement of abstinence or reduction of use, safe use, counseling and treatment of withdrawal symptoms or pharmacotherapy (Wong et al. 2011)

Abiding by this philosophy, the nurse may make a number of recommendations if complete cessation by the perinatal woman is not immediately possible or feasible. Examples of such recommendations could include:
• The nurse can encourage the woman to keep track of substance use.
• She can discuss the benefits of reducing dosage and frequency of use with perinatal abusers.
• The nurse can recommend the patient reduce her use by one-half each day; if this is not possible, any decrease in use is beneficial.
• The nurse can also recommend that the patient intersperse use with periods of abstinence.
• The nurse can also encourage a safer route of drug administration and help the patient explore substitutes for the particular substance being abused. For instance the use of methadone for opiate dependence.
• The nurse can also encourage the patient to avoid drug using friends.

The nurse could also make potential referrals (Integrated care provision) to the perinatal woman such as:
• Childbirth preparation class
• Public assistance/medical assistance/food stamps
• Nutrition Program
• Support groups
• Education and career building support
• Safe and sober housing access
• Legal services
• Child Protective services
• Adoption counseling
• Pediatric follow-ups care for infant
• Mental health services
• Domestic violence counseling and services (Taylor et al. 2009).

1.11.2 Screening Recommendations for Perinatal women

• Pregnant women as well as women of childbearing age should be screened periodically for tobacco, alcohol, prescription and illicit drug use.
• If the testing of substance abuse is clinically indicated, urine drug screening is the most recommended method.
• Health care workers are advised to develop a flexible approach towards the care of women with substance abuse problems. How screenings and assessments are conducted is as important as the information gathered. Screening and assessment are often the initial contact between a woman and the treatment system (Wong et al 2011). They can either help build a trusting relationship or create a deterrent to engaging in further services.
• Legal requirements or policies with respect to the drug testing of newborns, may vary by jurisdiction and it is imperative that nurses and other health care professionals to be acclimatized to the regulations in their region
• Self-administered tools may be more likely to elicit honest answers; this is especially true regarding questions related to drug and alcohol use.
• Face-to-face screening interviews have not always been successful in detecting alcohol and drug use in women, especially if the counselor is uncomfortable with the questions.
• Substance abuse screening and assessment tools, in general, are not as sensitive in identifying women as having substance abuse problems.
• Selection of screening and assessment instruments should be examined to determine if they were developed using female populations. If not, counselors need to explore whether or not there are other instruments that may be more suitable to address specific evaluation needs.

Discussion

In recent times, although the overall rates of substance use are lower among pregnant women compared to nonpregnant women, the rate of illicit drug use for pregnant women aged 15 to 17 (16%) doesn't significantly differ from the rate for nonpregnant women in this age range (13%) (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011a). Alcohol is the most ubiquitous teratogen whilst tobacco use is the most commonplace addiction among young perinatal women (Porter & Kaplan, 2011).

The innocuous acceptance of alcohol and tobacco in Western society enables young women to form habits long before they become pregnant making it much harder to quit those habits once they realize they are pregnant. It is in light of this trend prevalent among young perinatal women who engage in the 'social abuse' of alcohol and other drugs, that a compelling need arises to take a thorough look at screening processes already in place for ascertaining the potential and/or incidence of substance abuse in perinatal women. This is vital since detection of the substance abuse problem by comprehensive screening/assessment is the first step in treating it thoroughly.

On site screening and provision of accessible nursing service to substance abusing perinatal women is important since these women are statistically known to have fewer resources (education, employment, income) than men, have care of dependent children and are comorbid at the beginning of screening and treatment (United Nations Office on Drugs and Crime, 2004).
The issue of the education of these women cannot be downplayed or overemphasized, (Massey et al. (2012), advocate that the maternal identity (self-esteem) of these women should be affirmed regularly in order to attain and maintain a level of abstinence since to a large degree most women really do want healthy babies. Women also of child bearing age should be educated on regular basis about the dangers of alcohol and drugs exposure to the health of the unborn baby; which lingers throughout the breastfeeding period and also into early childhood.

A noteworthy feature this literature review makes evident is the paucity of technological innovations in the routine screening process of perinatal women in recent years. As a result of this, it is crucial to increasingly inculcate technological advancements or innovations from other disciplines to this aspect of nursing so as to improve the screening process. In the USA, the National Aeronautics and Space Administration (NASA) has developed a technological project known as VIPER (Visual Identification of Pupillary Eye Responses) in conjunction with the Corrections & Prisons Department and this project has come out with an instrument called optical funduscope. This instrument can measure involuntary eye movements associated with drug use impairment and is deemed to be a great tool to screen substance abuse exposure according to Jackson (1992) cited in (Nissen & Kraft, 2007).

An innovation worthy of consideration is the Telemetered Drug Use Detection System. This system basically detects drug use by analysing perspiration using a wrist band innovation worn by the suspected or vulnerable abuser. When the device detects drug use, it forwards the information to a central control station. This technology combines position identification, microcommunications, chemical and biological processes as well as signalling to facilitate the screening process. It is a noninvasive detection method of drug use (Jackson, 1992) as cited by (Nissen & Kraft, 2007). It will be very beneficial if these technological innovations can be enhanced in a way that makes them more user friendly in screening perinatal abusers since these technological innovations according to (Jackson, 1992) were developed primarily for the Corrections and Prisons Services (cited by Nissen & Kraft, 2007).

Dixon et al. (2008) postulates that the manipulation of the perinatal atmosphere through child skills training and parent education, can help reduce adverse conditions normally linked with substance abuse exposure in the perinatal period. Integrated or a comprehensive approach to tackle the issue of substance abuse among perinatal women is crucial to ending intergenerational cycles of addiction in certain neighbourhoods. For instance, through the use of onsite stations, nursing services can be conveniently delivered to perinatal abusers. This is crucial for continuous monitoring and improvement of the lives of perinatal abusers and their families (Niccols et al., 2012).
1.12 Ethical Considerations

American College of Obstetrics and Gynecology Committee (2008) defines ethics as the philosophical study of morality, moral judgments and moral problems. Ethical issues may arise from moral dilemmas; a conflict of social values and ethical principles that support different courses of action. Retrieval of data from inanimate sources during the research process obviously leads to issues which have to be resolved and catered to ethically. The research for this thesis was conducted through systematic literature review and for that matter; there was no data acquisition from human sources through interviews, questionnaires or observations. Since human candidates weren't considered in the data acquisition process, ethical considerations such as privacy/confidentiality and avoidance of harm are rendered null and void. On the other hand, it is vital to mention that attention was given to ethical considerations such as:

- Accurate reporting
- Proper referencing
- Veracity and authenticity of sources

The research of this thesis was ethically in following a systematic empirical method of collecting and analyzing data. Accurate reporting of articles was done to avoid misrepresentations or the incidence of bias. Proper referencing was also incorporated to avoid plagiarism. The main objective of this thesis work is to describe nurses’ role in the screening process, depict current trends in screening of perinatal abusers and finally make recommendations of potential improvements that can be made.

1.13 Trustworthiness

Graneheim & Lundman (2004) purport that legitimate research, is research comprising of trustworthy findings which essentially alludes to an efficacious or effective research methodology. The use of the literature review method as the research methodology of this thesis in essence, makes for a ‘legitimate research’ since this methodology seeks to employ a scientific or empirical approach of data retrieval, aggregation and the final synthesis of this data. This approach ultimately seeks to decrease bias because of its systematic nature (Tranfield et al., 2003).

In qualitative research, noteworthy to the research work are the four aspects of trustworthiness. These are noted to be the issues of credibility, transferability, dependability, and conformability as relevant to the final research work.
Credibility can be defined as an assessment as to whether or not research findings depict a true picture or interpretation of the original data. Transferability is the extent to which the research findings are pertinent; thus fitting and relevant to different settings or scenarios beyond the research/project work. Dependability can also be defined as the evaluation of the quality of the integrated processes of data collection, its analysis and further synthesis to engender or generate the research findings. Conformability finally, determines how accurately the research findings are corroborated by information or data sources retrieved (Agostinho, 2004).

This paper incorporates the above ethical principles in its research work; this is readily evident by the categorical outlining of the process used for data search (retrieval), data sorting, and data synthesis to yield common themes and to ensure proper interpretation. The data used in this thesis was collected through a literature review mostly from medical/health journals and articles. The original data from these sources is deemed viable having faced rigorous academic scrutiny prior to publication.

To ensure conformability, the reference system in this thesis follows the Laurea's thesis guidelines. Citations are made to all articles, journals and other information sources used to avoid plagiarism and to give credit where necessary. The use of in-text referencing and a final list of references are implemented as proof of conformability in this thesis.

The dependability and credibility of this thesis is evident primarily because a frame work was employed in the literature search and data analysis to increase accuracy and decrease bias in the data. For instance in the literature search, this framework employed an exclusion and inclusion criteria to get the most relevant data sources in answering the research question. This search strategy as a result, came up with 10 articles relevant to identifying the screening of substance abuse among perinatal women. To ensure continuity, the review methodology was followed stringently by having relevant discussions with the thesis supervisors and also between the authors of the thesis (peer review). Evidence gaps have also been identified, with the potential that existing knowledge could be extended in a way that deepens understanding and creates awareness as stated in the recommendations for further studies.

1.14 Credibility

Credibility of this thesis is apparent whereby data is empirically analyzed to engender common themes. Using an Inductive Content Analysis process, relevant information to the research topic and questions were coded using a combination of letters and numbers such as 'A1' & 'B2'. Colours were sometimes also used to facilitate the creation of common themes (summaries) for further group analysis. According to Graneheim & Lundman (2004), data interpre-
tation requires an adequate volume of information analysed to solicit relevant conclusion and this thesis does this by applying the aforementioned methodology.

1.15 Limitations

A prime limitation of writing this thesis work included issues/instances of technical difficulties with search engines, restricted articles accessible only by membership, unobtainable full text articles, language barriers in deciphering foreign language based articles (in Finnish) and also situations whereby databases were temporarily unavailable.

Another major limitation is the fact that the articles used for this paper where not only focused on nurses, but mostly covered the interventions of the multidisciplinary health team including gynaecologists and obstetricianans.

Moreso, the articles were from different countries such the USA, Canada, Australia, UK, Finland etc, where the health care procedures, duties and responsibility of nurses vary. The paucity of literary works and research/innovations pertaining to screening of substance abuse among perinatal women seems to be a worldwide phenomenon and Finland is no exception according to (Tanhua, Virtanen, Knuuti, Leppo, & Kotovirta, 2011), as the structural framework for engaging drug abuse is mainly male oriented.

Conclusion

A risk factor for poor behavioural and developmental outcomes among children is perinatal exposure to substance use (Coles & Black, 2006) and the total lifetime costs of caring for a substance abuse exposed child have been estimated to be between $750,000 and $1.4 million (Kalotra, 2002); it is in light of the aforementioned statistics that this review sought to emphasize the significance of the screening process catering to perinatal women as the first step to contain and remedy this problem.

As of now, a comprehensive assessment is the only way for nurses to detect and draw up a comprehensive care plan for substance abusing perinatal women. The detection process involves interviews or self-administered questionaires, while considering the risk factors such as: Having a family history of addiction, presenting other psychological problems, lacking family support or involvement. Nurses and other health care professionals need to pay more attention in the screening of perinatal women who present these risk factors (Mayo Clinic, Oct. 2011).
The care plan has to take into consideration the screening tools and methods, as well as the resources available to the client. It is also the responsibility of the nurse to create a conducive environment for the screening interview to take place and to update his or her knowledge of screening methods and screening tools innovations.

Information search for literature materials on screening of substance abuse among perinatal women is sparse and arduous to come by. It is therefore necessary that better methods of obtaining maternal risk information/ susceptibility to drugs are developed so as to make relevant progress in this field of nursing science. The fact also stands that perinatal women are apprehensive in disclosing potentially stigmatizing information about their substance abuse habits, which may hamper the screening process. To counter this problem, Bakhireva and Savage (2011) proposed a two pronged approach/solution whereby the normal screening interviews (self/nurse administered) are mandatorily complemented with the use of biomarkers in the screening process in order to increase the rate of detection of substance abuse among perinatal women. The use of clinical biomarkers will also help eliminate inconsistencies evident in conventional self-reported data and other screening techniques.
References


Kalland, M. 2008. Onko meillä keinoja auttaa päihdeperheeseen syntyvää vauvaa? [Do we have the means to help a baby to be born into a drug user family?] Suomen Lääkärilehti, 48, 4173.


Appendices

Appendix 1. Cage Questionnaire for alcohol abuse Screening

**CAGE**

C- Have you ever felt you ought to cut down on your drinking or drug use?

A- Have people annoyed you by criticizing your drinking or drug use?

G- Have you ever felt bad or guilty about your drinking or drug use?

E- Eye-opener: Have you ever had a drink or drug first thing in the morning to steady your nerves or get rid of a hangover?

The CAGE can identify alcohol problems over the lifetime. Two positive responses are considered a positive test and indicate further assessment is warranted.

National Institute on Alcohol Abuse and Alcoholism cited by (Taylor et al. 2012)
Appendix 2. Prominent Biomarkers and their Reliability

<table>
<thead>
<tr>
<th>BIOMARKERS</th>
<th>SUBSTANCE TESTED FOR</th>
<th>BIOLOGICAL SAMPLE SOURCE</th>
<th>RELIABILITY/ SENSITIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Glucuronide (EtG)</td>
<td>Alcohol</td>
<td>Urine (Mother’s)</td>
<td>High</td>
</tr>
<tr>
<td>Ethyl sulfate (EtS)</td>
<td>Alcohol</td>
<td>Urine (Mother’s)</td>
<td>Medium</td>
</tr>
<tr>
<td>Fatty Acid Ethyl Esters (FAEEs)</td>
<td>Alcohol, cocain, Opiates etc</td>
<td>Meconium (1st stool of baby), Hair samples from new baby.</td>
<td>High</td>
</tr>
<tr>
<td>Phosphatidylethanol (PEth)</td>
<td>Alcohol</td>
<td>Dried blood spot (DBS) from heel of new born baby</td>
<td>Medium</td>
</tr>
</tbody>
</table>
Appendix 3. The 4P’s Questionnaire for alcohol and drug screening

<table>
<thead>
<tr>
<th>4PS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever used drugs or alcohol during this Pregnancy?</td>
</tr>
<tr>
<td>Have you had a problem with drugs or alcohol in the Past?</td>
</tr>
<tr>
<td>Does your Partner have a problem with drugs or alcohol?</td>
</tr>
<tr>
<td>Do you consider one of your Parents to be an addict or alcoholic?</td>
</tr>
</tbody>
</table>

This screening device is often used as a way to begin a discussion about drug or alcohol use. Any woman who answers yes to one or more questions should be referred for further assessment.

Ewing H. Medical Director, Born Free Project (2010), Contra Costa County, Martinez, CA 94553. cited by (Taylor et al. 2012).
### Appendix 4. Data extraction form

<table>
<thead>
<tr>
<th>Author and year of publication</th>
<th>Database source</th>
<th>Purpose of research work</th>
<th>Research methodology</th>
<th>Central findings</th>
<th>Relevance to this paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar-Oz, B., Klein, J., Karaskov, T., &amp; Koren, G. (2003)</td>
<td>Ebsco (Cinahl)</td>
<td>Compares the use of meconium and neonatal hair analysis for detection of gestational exposure to drugs</td>
<td>Randomized control trial</td>
<td>Both meconium and neonatal hair are effective biological markers of intra-uterine illicit drug exposure.</td>
<td>The importance of biomarkers testing in the screening for substance abuse</td>
</tr>
<tr>
<td>Bakhireva, L.N., &amp; Savage, D.D.</td>
<td>Elsevier Science Direct</td>
<td>Developing more sensitive and specific studies</td>
<td>Qualitative studies</td>
<td>Need for more work to be done to develop specific studies.</td>
<td>Improvements in biomarkers and screening of substance abuse</td>
</tr>
<tr>
<td>Reference</td>
<td>Database/Source</td>
<td>Title or Topic</td>
<td>Task or Research Focus</td>
<td>Result or Conclusion</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
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<td>------------------------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td>Varjonen, V., Tanhua, H., Forsell, M., Perälä, R. (2011)</td>
<td>Google Scholar</td>
<td>Report on the drug situation in Finland</td>
<td>Epidemiological survey</td>
<td>Drug use and drug-related problems have remained fairly stable in Finland over the past years</td>
<td>Recommendations for improving treatment system for perinatal abusers in Finland</td>
</tr>
<tr>
<td>Taylor, P, Bailey, D., Green, S.R., &amp; McCully, C (2012)</td>
<td>SAGE</td>
<td>Assessment of substance abuse during pregnancy</td>
<td>Systematic review &amp; Evidence Based Practice</td>
<td>Screening techniques and tools in recent times</td>
<td>Demeanor and ethics of nurses during the screening process</td>
</tr>
<tr>
<td>Kellogg, A., Rose, C.H., Harms, R.H., Watson,</td>
<td>Pubmed</td>
<td>Evaluate trends and prevalence</td>
<td>Retrospective cohort study</td>
<td>Chronic narcotic use during pregnancy is</td>
<td>Substance abuse trends and corollary effect on</td>
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<tr>
<td>Author(s)</td>
<td>Database</td>
<td>Study Type</td>
<td>Summary</td>
<td>Key Findings</td>
<td></td>
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<td>-----------</td>
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<td>------------</td>
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<td>--------------</td>
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<tr>
<td>W.J. (2010)</td>
<td></td>
<td></td>
<td>of chronic prescription narcotic use during pregnancy and the subsequent neonatal outcomes</td>
<td>Increasing in prevalence of perinatal women and neonates</td>
<td></td>
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<tr>
<td>Niccols, A., Milligan, K., Smith, A., Sword, W., Thabane, L., &amp; Henderson, J. (2012)</td>
<td>Pubmed</td>
<td>Systematic Review</td>
<td>Systematic review to examine the effectiveness of integrated programs for mothers with substance abuse issues</td>
<td>Parenting skills and general maternal health of perinatal women improved after undergoing treatment in integrated program centres</td>
<td>The importance of a multi-team approach in treating perinatal substance abusing women</td>
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</tbody>
</table>