

# Ginger is ineffective for hyperemesis gravidarum, and causes harm: an internet based survey of sufferers

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### ORIGINAL

**Objective:** Ginger is commonly suggested to women experiencing nausea and vomiting of pregnancy (NVP). Evidence for the efficacy of ginger for hyperemesis gravidarum (HG) is lacking despite its well-known status. The aim of this study was to assess the efficacy of ginger for controlling symptoms of HG and to investigate possible negative side effects.

**Design:** A self-selected internet-based survey.

**Setting:** Participants were recruited principally through social media and were predominantly UK-based.

**Sample:** 512 women who had been hospitalised for HG within the past five years.

**Methods:** Internet survey platform Survey Monkey.

**Main outcome measures:** Questions were mostly asked using Likert-Type scales with the option for additional free text responses.

**Results:** Women reported that ginger is often suggested for HG and 87% of respondents have tried it. Eighty-eight per cent of those report that it is completely ineffective. Fifty-one per cent of respondents who tried ginger reported that it actually exacerbated symptoms. Eighty-two per cent of women reported that suggestions of ginger caused a worsening of their mood, inducing feelings of anger, lack of validation, isolation, guilt and exacerbating the feeling that they are misunderstood. Seventy-nine per cent of women who had ginger suggested by a health care professional (HCP) reported that it eroded their trust and confidence in the HCP.

**Conclusions:** HCPs should stop suggesting ginger to women with hyperemesis. Not only is it ineffective, but it can cause harm to the sufferer and damages the patient-HCP relationship.

**Keywords:** Ginger, hyperemesis gravidarum, nausea, vomiting, pregnancy, health care professional.

### Introduction

HG is a severe form of pregnancy sickness. Although no agreed definition of the condition exists, clinical manifestations include weight loss of 5% or more of pre-pregnancy weight, ketosis and/or a urine output of <500ml in 24 hours. Electrolyte imbalance and further complications can occur without adequate treatment (Dean 2014). Its prevalence varies depending on how HG is defined, but a recent meta-analysis of international studies gives a prevalence of 1.1% (Einarson *et al* 2013).

HCPs can be reluctant to prescribe pharmaceuticals for HG (Gadsby 2004, Gadsby *et al* 2011) and both HCPs and women over estimate the teratogenicity of medication (Koren & Levichok 2002). The only drug licensed worldwide for NVP is doxylamine succinate and pyridoxine hydrochloride 10mg/10mg, known as Diclectin in Canada and Diclegis in the USA.

Ginger is often recommended to women as a 'natural' remedy for NVP, regardless of severity of symptoms. In our experience running a helpline for the charity Pregnancy Sickness Support (PSS), we find that most



women have tried ginger in desperation for something that can ease their symptoms, generally before seeing a doctor or seeking pharmaceutical treatments. They report that ginger is ineffective at controlling symptoms and can cause side effects, as reported by a previous online survey (O'Hara 2013).

Women have also informed us that suggestions to try ginger make them feel that their condition is being trivialised and even that they no longer trust their HCP. This is important as poor physician-patient relationships are a risk factor for therapeutic abortion in women with HG. Women with HG who had had terminations were three times more likely to report that their health care providers were uncaring or did not realise how sick they were. Most of these women expressed that one reason for the termination was that they had no hope of relief (Poursharif *et al* 2007).

Women with HG often feel isolated and misunderstood by family, friends and HCPs (Swallow 2010, O'Hara 2013, Sykes *et al* 2013) and suggestions to try ginger may exacerbate these feelings. In this context, advice from an HCP to take ginger may not be helpful.

We wished to examine how useful women find ginger for controlling symptoms of HG, prevalence of side effects and the effect it has on morale and their relationship with HCPs. No previous studies have investigated the effectiveness of ginger as used in the community for HG, a suggestion to try ginger for a woman's experience of HG, or her relationship with her HCP.

### Method and materials

The online survey service Survey Monkey was used to gather data and surveys were promoted via several social media platforms reaching several

thousand individuals. Respondents were not asked to supply any personal or identifiable information so all data are fully anonymous. The posts promoting the survey were worded in a neutral way so as not to imply any particular outcome.

For example:

*'I want to assess the impact of people suggesting "Have you tried ginger?" to women with hyperemesis gravidarum. Please take this survey if you were admitted to hospital in the last 10 years for HG'.*

Respondents were not limited to the UK but, due to the routes of promotion, respondents were predominantly UK sufferers. In order to avoid problems with the lack of a definition for HG, only women who had been hospitalised for HG during their pregnancy were eligible to participate. The survey was open for four consecutive days, from Monday to Thursday of one week, and all responses were collected in that period.

Questions were predominantly quantitative although some questions had an option to add a comment if the answer they wanted to give was not an option. The questions were worded so as not to indicate bias and there was equal opportunity to report positive outcomes from trying or suggesting ginger as there were negative.

There were two qualitative questions. The first was for people who answered that taking ginger to help symptoms had experienced a negative effect. They were asked to specify the impact. The second was an opportunity at the end of the survey for women to add further comment regarding their experience.

### Results

A total of 514 eligible women responded. Between them they had experienced 965 HG pregnancies. Not all women answered all questions and so the number per answer will be specified in each case. All respondents had been pregnant within the previous ten years. Four hundred and fifty-seven (89%) respondents had been pregnant in the last five years.

### Knowledge of ginger and experience of trying it

Most women were already well aware of ginger as an antiemetic; only 59 women said that they had not known about it prior to pregnancy. Those who already knew about it were asked how they knew and 410 respondents gave 640 responses. The most common response (275) was through word-of-mouth with a number of women specifying it had been a remedy used in childhood for travel sickness or tummy bugs. One hundred and forty-eight said it was general knowledge, and media, books, internet and other made up the remaining 247 responses.

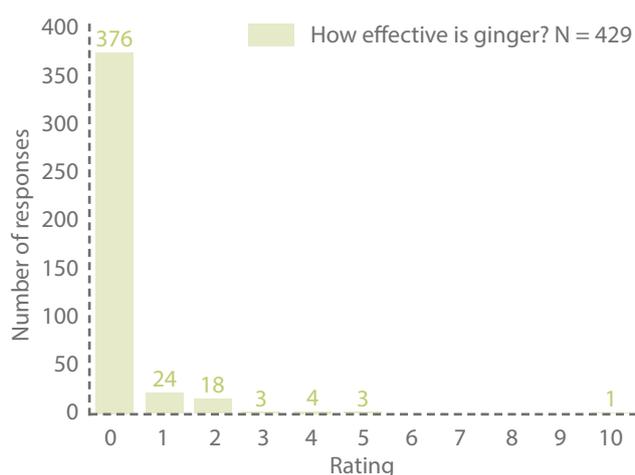
During pregnancy, respondents reported that they frequently heard suggestions to try ginger, with 60%

saying that they had heard the suggestion more than 20 times. Only three women said that they had never encountered a suggestion to try ginger. When asked who had recommended ginger, 487 respondents gave a total of 2770 responses, making an average of 5.7 per woman. The largest category was friends with 447 responses. The next highest were close relatives (385), work colleagues (336) and strangers (304). HCP categories were doctors (295), nurses (258), midwives (289), sonographers (78) and pharmacists (131). The remaining categories were distant relatives (225) and other (22), in which women specified online social media forums, dieticians, alternative health practitioners and health food store staff.

Women were asked if they had tried taking ginger to help with their symptoms during pregnancy, with 88% (439 of 501) answering yes. Many different forms of ginger had been tried, such as ginger biscuits (360), ginger beer (173), dried ginger tea (169), ginger sweets (157), fresh ginger tea (144), raw ginger (115), crystallised ginger (111) and ginger root capsules (1000mg) (79). On average 3.5 different types of ginger had been tried per woman.

Those who tried ginger for their symptoms were asked to rate how helpful it was on a scale of 0–10. Results are illustrated in Figure 1. Four hundred and twenty-nine women responded of whom 376 (88%) rated it not helpful at all. Of those who gave it a rating greater than zero, some noted that ginger only helped in the early stages. Others noted that it may not have been the actual ginger which helped but the substrate in which they took it eg biscuit, ice lolly, tea.

**Figure 1. How helpful was ginger? Rated on a scale of 0–10. 0 = not at all helpful, 10 = helped significantly.**



When asked about side effects from ginger or other negative impacts, 225 (54%) said that they had experienced negative effects. Two hundred and thirty-eight women left a comment on the impact that taking ginger had had on them. Exacerbation of nausea and/or vomiting symptoms were the most common impact reported by 127 (56%) women.

*'Dramatic increase in nausea vomiting and heartburn. I was very surprised because when I am not pregnant ginger is helpful.'*

The next most common category was pain and/or burning during vomiting with 76 (32%) of those who responded:

*'It burns the throat then you throw it up. It was so painful.'*

*'Gingery sick stings more than any other!'*

Acid reflux or heartburn caused by ginger products was reported by 24 (10%) women:

*'It gave me painful heartburn and burnt my throat coming back up!'*

Emotional distress caused by the loss of hope or increased isolation was reported by 29 (12%) of those who offered responses:

*'Every time a new remedy is tried, a lot of hope is attached to it, so it is hugely disheartening when it doesn't work.'*

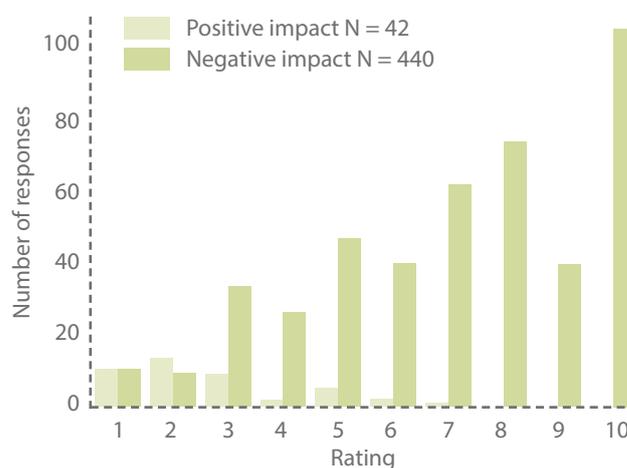
*'Feeling of utter despair that it didn't work.'*

### Effect on mood of suggestion to try ginger

Respondents were asked if people suggesting ginger had an effect on their mood in either a positive or negative way. Four hundred and eighty-nine women responded with 403 (82%) reporting a solely negative effect on their mood. Four (0.8%) reported a positive impact and 44 (9%) reported both positive and negative effects. Twenty-eight (6%) reported no impact on their mood and ten (2%) couldn't remember.

The women who experienced a positive or negative impact were asked to rate the impact on a scale of 1–10. The results are illustrated in Figure 2. Only 42 women rated the impact as positive, with the majority giving a low score: none rated it as more than seven. Four hundred and forty women indicated a negative impact and the ratings distribution is almost the inverse of the positive one; 216 (49%) indicated that it made their mood a great deal worse with a rating of 8–10.

**Figure 2. Ratings of both positive and negative effect on mood of suggestions to try ginger. 1 = improved my mood a little; 10 = improved my mood a lot (positive impact). 1 = made my mood a little worse; 10 = made my mood a lot worse (negative impact).**



Respondents were asked about reasons for the positive and negative impacts. The results are shown in Table 1 (positive) and Table 2 (negative). Forty-eight women gave a total of 104 responses for the positive impact. For the negative impact, 448 women gave a total of 2601 responses, an average of 5.8 responses per woman.

**Effect on relationship with HCP**

We asked women who had experienced a suggestion of ginger from an HCP to rate the impact it had on their feelings towards the HCP. Results are shown in Figure 3.

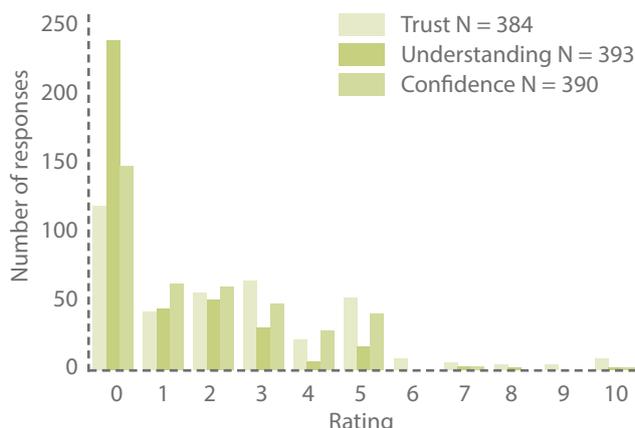
**Table 1. Reason given for improvement of mood following suggestions to try ginger**

| Answer options   | Response % of 48 respondents | Response count |
|--|------------------------------|----------------|
| It let me know people cared                                  | 69%                          | 33             |
| I liked that people were trying to help me                   | 27%                          | 13             |
| Made me feel hopeful that I could help myself                | 4%                           | 2              |
| It made me feel loved and cared for                          | 13%                          | 6              |
| Reduced feelings of isolation                                | 15%                          | 7              |
| Made me feel like others appreciated what I was experiencing | 0%                           | 0              |
| It made me feel happier                                      | 54%                          | 26             |
| Made me feel understood                                      | 21%                          | 10             |
| It made me trust their advice more                           | 6%                           | 3              |
| Other (please specify)                                       | 8%                           | 4              |
| <b>Total</b>   |                              | <b>104</b>     |

**Table 2. Reason given for worsening of mood following suggestions to try ginger**

| Answer options  | Response % of 48 respondents | Response count |
|---|------------------------------|----------------|
| It made me feel like no one understood                        | 93%                          | 415            |
| It made me feel like they thought I shouldn't take medication | 52%                          | 233            |
| It made me feel like they thought I could cure myself         | 76%                          | 340            |
| It undermined my experience                                   | 73%                          | 329            |
| It increased my isolation                                     | 51%                          | 230            |
| It reduced my trust in their advice                           | 44%                          | 199            |
| It made me feel helpless                                      | 48%                          | 213            |
| It made me feel guilty for not having a 'natural pregnancy'   | 46%                          | 204            |
| It made me feel irritated and/or angry                        | 84%                          | 378            |
| Other (please specify)  | 13%                          | 60             |
| <b>Total</b>  |                              | <b>2601</b>    |

**Figure 3. Effect of suggestion of ginger on feelings towards HCPs. 0 = reduced trust/confidence completely/made me feel less understood; 10 = increased trust significantly/increased trust a lot/yes I felt very understood.**



When asked to rate how understood it made them feel by their HCP, 393 women responded with 239 (61%) giving a score of zero. A further 131 (34%) rated their feeling of being understood between 1–4 and only six (1.5%) scored it from 7–10.

A large majority indicated that it had reduced trust in the HCP with 305 (79%) giving a rating of between zero and four. One hundred and twenty (31%) gave a rating of zero indicating that the suggestion of ginger eroded their trust in their HCP completely. Only 28 (7%) of those who answered the question reported an increased feeling of trust with ratings from 6–10.

When asked about effect on confidence in the HCP's professional ability, 390 women answered the question with 305 (78%) scoring 1–4, indicating that confidence had been reduced. One hundred and forty-eight (38%) answered zero: that it reduced their confidence completely. Only two women (0.4%) reported any increase of trust in their HCP by giving a score greater than five on the scale.

**Emergent themes**

Respondents were offered the opportunity to relate additional information with the question and 182 responses were given.

*'Is there anything else you would like to add about your experience of people suggesting ginger while you were suffering hyperemesis gravidarum or since your pregnancy?'*

Several themes emerged which have been characterised as anger, lack of validation, wish for greater understanding and feelings of isolation.

Sixty out of the 182 respondents expressed feelings ranging from some degree of frustration to outright rage.

*'It upset me everytime as do people honestly think that I wouldn't have tried something that simple to cure my constant vomiting! I felt people thought I was being dramatic and exaggerating it!! Felt like shoving ginger down their throats!'*

Women are dismayed to be told to try ginger by HCPs. They feel that the HCP actually knows no more about HG than anyone else they've spoken to and this leads to a loss of trust and confidence.

*'I can understand when family and strangers and people who don't know any better suggest ginger but for it to be suggested by every healthcare professional every single time it gets really frustrating that they don't seem to know any better.'*

*'When it came from a HCP it infuriated me because when you are in hospital not able to keep even water down being told to try ginger is just ridiculous. It lowered my trust in the HCP and I didn't want to to [sic] listen to anything else they said as I thought they just didn't understand.'*

*'I now have no trust in my midwife, nor do I feel I can confide in her or discuss any issues or fears I have with her. If she couldn't show compassion & knowledge about HG, what else doesn't she know about!?'*

A commonly expressed sentiment is that of isolation; women supported by the PSS report isolation as one of the most difficult aspects of the condition. Suggestions to try ginger can intensify this feeling.

*'I think the ginger issue highlights that people feel like HG could be "cured" by natural methods. When every HG woman has real anxiety over the need to take prescribed medicines [will it harm my baby? being a significant worry], it adds to our isolating experience when someone suggests ginger. I recognised that people were trying to be helpful but it was so upsetting that people didn't appreciate how ill I was.'*

*'I can understand non medical professionals' suggestions of ginger products even if it's incredibly frustrating. But when the senior consultant, head midwife and nurses suggest ginger it just made me want to give up. I was alone. No one would be able to help me. I considered termination a hundred times or more.'*

Many women expressed the feeling that suggestions to try ginger are tantamount to saying that they are exaggerating their symptoms and find that it undermines their experience.

*'It's like saying have you tried smiling to someone with depression. It completely undermines what that person is going through and makes you feel like they think you are making it up.'*

One woman expressed that the manner in which the suggestion is made is important to how it is received:

*'...whilst preparing for another pregnancy a doctor brought up again "would I try ginger?"! However she did so very sensitively and was talking about using pure ginger capsules 3000mg a day and alongside other treatment. This was the first time I didn't get very cross, as I felt she understood that for it to*

*possibly help, the amount of ginger and its level of purity are paramount and she was acknowledging that it was only one small thing to try, but that the condition requires proper treatment.'*

## Discussion

The results reported here reflect a picture which accords with anecdotal evidence related regularly to PSS. Knowledge of ginger as an antiemetic is widespread in the community and people in women's lives are keen to tell them about it. Women were told repeatedly by family and friends, but also acquaintances and HCPs and even strangers in the street. Most women had tried ginger, mostly in the form of food and drinks. The overwhelming verdict from this study on the efficacy of ginger is that it is not at all helpful for controlling symptoms and causes unpleasant physical side effects in around half of those who tried it.

Ten times as many women said that suggestions of ginger worsened their mood than those who said it improved their mood. Even those who said it had a positive effect, largely rated that effect as minor. Conversely, of those who said that it made their mood worse, the majority rated the worsening of the mood as severe. The main reason for this was that it underlined to women that the person making the suggestion did not understand what they were going through. Rather than experiencing suggestions to try ginger as helpful and welcome, women find them irritating and enraging. This partly stems from the fact that the suggestions are repeated by numerous people, but also that women perceive it to be undermining of their experience.

Suggestions of ginger from an HCP had a marked negative impact on the feelings of women towards their HCP. The majority of respondents reported that it reduced their confidence in the HCP, made them feel that their HCP understood their symptoms less and severely eroded their trust in the HCP. The reaction of women to suggestions of ginger must be set in context to understand why it is not regarded positively. Women rarely approach an HCP for help at the first sign of NVP symptoms, rather, they are usually severe before women will visit their GP for what is, in the public consciousness, regarded as a minor side effect of pregnancy. A lot of hope is invested in HCPs, so the realisation that they can offer nothing better than a folkloric remedy which has already been suggested by friends and family engenders despair. HCPs should be aware that the woman has almost certainly been advised to try ginger repeatedly by friends and family and is likely to have already tried it to no avail. Even if she doesn't already know about ginger, women with HG are desperate for relief of their suffering and will invest a great deal of hope into any new suggestions. Offering this hope when there is so little evidence of efficacy is highly questionable.

The themes raised by this study are in accordance with previous studies where women have been asked to describe their experiences of HG; they report being disbelieved by HCPs, having their symptoms dismissed or trivialised, feeling misunderstood and being isolated (Mazzota *et al* 1997, Munch 2002, O'Brien *et al* 2002, Chandra *et al* 2003, Meighan & Wood 2005, Locock *et al* 2008, Poursharif *et al* 2008, Swallow 2009, Power *et al* 2010, O'Hara 2013, Sykes *et al* 2013, Dean 2014).

This study is the first to examine both the effectiveness of ginger as used by women with HG in the community, and to address the unintended negative outcomes of its use. A limitation of the data presented here is that they are retrospective and self-reported. By definition, the women who replied to this survey were those who were actively seeking information online about HG. Nevertheless, these findings are a useful addition to a very small body of evidence. There is a need for high-quality prospective research into all treatments for HG, pharmaceutical or not. A Cochrane review of interventions for NVP noted the difficulty of comparing studies due to variations in definitions of what constitutes mild, moderate and severe illness and concluded that there was some inconsistent evidence of benefits of ginger for NVP (excluding HG) (Matthews *et al* 2015). The only study to examine the efficacy of ginger specifically for HG compared four daily doses of a 250mg capsule of ginger with a placebo in 27 women admitted to hospital for HG (Fischer-Rasmussen *et al* 1991). It found that a carefully prepared, high-dose ginger capsule may be effective at reducing symptoms in women with HG. However, a drawback of any placebo-controlled study relating to ginger is that it has a strong flavour. Although it may not be tasted while swallowing a capsule, ginger flavour is unavoidable during both vomiting and belching so placebo effect cannot be reliably discounted.

There is, therefore, a paucity of evidence that ginger is effective for HG and no evidence whatsoever for ginger flavoured food and drink. Moreover, ginger is unregulated and the strength of the active ingredient may differ from batch to batch (Schwertner & Rios 2007). Some reviews and management strategies for HG advise that ginger may be recommended as there is evidence of benefit for NVP and no evidence of harm (Goodwin *et al* 2008, Bottomley & Bourne 2009, Sonkusare 2011), while others do not recommend it, or recommend it only when symptoms are mild (Einarson *et al* 2007, King & Murphy 2009, Jarvis & Nelson-Piercy 2011). Not only does ginger not help, but the use of ginger as a first line treatment,

once symptoms have already become severe, may delay effective treatment. Early intervention has been shown to limit both the duration and severity of HG (Maltepe & Koren 2012). By requiring a woman to try an ineffective remedy, the HCP risks missing a crucial window for commencement of effective treatment, and may condemn women to a longer, more severe illness.

## Conclusion

If ginger is to be used as an antiemetic, then proper dosages and methods of administration must be determined, as well as more research into its efficacy compared with conventional antiemetics. The risks and side effects of ginger for HG require further research to be understood and balanced against potential benefit. When an HCP recommends an ingested treatment, the patient is entitled to ask: What dose should I take? How effective is it? Are there any side effects? At the present time, no HCP can answer these questions for ginger as a treatment for HG. Since evidence is presented here of harm caused by the taking of, or the suggestion to take, ginger, we would call for HCPs to stop recommending ginger to women with HG until more evidence is available. This would constitute a meaningful improvement in the care of women with HG and can be implemented immediately at no cost.

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## Disclosure

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## Contributions

CD initiated and devised the survey with assistance from MOH. CD promoted the survey. CD and MOH jointly analysed the data and co-wrote the manuscript.

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