

# Health promotion and cervical cancer in South Africa: why adolescent daughters can teach their mothers about early detection

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## SUMMARY

*The notion that adolescent daughters can provide their mothers with health information that could actually impact the mothers' behavior is a novel area of health promotion research. The goal of this study is to explore the reasons why adolescent daughters would give their mothers cervical cancer information, and why mothers would have the intent to listen to advice to obtain a Pap smear. We randomly selected and interviewed 157 mother and daughter dyads in Cape Town, South Africa. Almost one-fourth of mothers (22%) indicated never having had a Pap smear, while 92% of their daughters said their mother has never talked to them about cervical cancer or a Pap smear. Willingness of daughters to ask their mothers to obtain a Pap smear was high (80%).*

*Motivations included the important health benefit and the sense of responsibility to share life saving information. Most mothers said they would definitely obtain a Pap smear when advised by their daughter (74%), while 25% said they would have to think about it and 1% said they would not listen. Mothers' main motivations included the direct health benefit and a strong sense of duty and responsibility to listen to her daughter. This study provides important information about the reasons why an upward (child to parent) health intervention may be feasible. The values of duty and responsibility, especially as it manifests within the family, hold promise for informing health promotion interventions directed at multiple generations.*

*Key words:* cervical cancer; Pap smear; cancer education; mothers; daughters; cancer disparities

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## INTRODUCTION

The notion that adolescent daughters can provide their mothers with health information that could actually impact the mothers' behavior is, as of yet, a fairly unexplored area of health promotion research. There is some reasonable skepticism about the feasibility of an upward flow (child to parent) of health information. The reason for such skepticism is partly because the implicit paradigm of 'parent knows best' remains unchallenged (Gustafson and Rhodes, 2006). Furthermore, there is the prevailing assumption that goodwill between

mother and daughter during the adolescent years is minimal due to the conflict and challenges between the adolescent and parent (Graber *et al.*, 1996; Laursen *et al.*, 1998; Steinberg, 2001). Despite inevitable conflict during adolescent years, most adolescent girls identify their mothers as their primary source of health care information (McKee *et al.*, 2004); however, daughters are often the initiators of topics such as dating, menstruation and babies (Fox and Inazu, 2008). Therefore, the majority of health promotion research has focused on the downward flow of health information (Walker and Allen, 1991; Lawson *et al.*, 1998;

Neumark-Sztainer *et al.*, 1998; Riesch *et al.*, 2003; Hynie *et al.*, 2006; Swain *et al.*, 2006).

## BACKGROUND

Various conceptual frameworks (Bandura, 1998; Umberson, 2008) suggest that health information can flow from child to parent; however, little research has examined the effectiveness of the upward flow of health messages. Social integration theory, as propounded by Emile Durkheim, is of particular importance (Umberson, 2008) because it emphasizes the importance of parent–child relationships in changing the parent’s social environment. Durkheim viewed these relationships as giving the parent a sense of purpose and meaning, which influences lifestyle choices. According to his model, children, for example, would have the potential to provide their parents with a sense of obligation about their behavior, and influence their parents to refrain from engaging in risky behaviors—especially, if the parents are told by their children how the behavior negatively affects the child. The sense of responsibility that originates from this relationship could reduce poor health behaviors, as parents seek to safeguard one of their children’s most important assets, the parent’s health. Additionally, the elaboration likelihood model of persuasion provides another explanatory framework for why and how mothers may evaluate the appeal of a persuasive message from their daughter (Baxter, 1988). This model takes into account the person’s motivation to listen, how the message might be processed on an emotional and factual level and the credibility and motivations ascribed to the messenger (Booth-Butterfield and Gutowski, 1993; DeBono and Harnish, 1988).

There is a growing body of data that suggests parents and other community stakeholders are receptive to the idea of children sharing knowledge with parents and potentially influencing their health behaviors. In a study conducted in Tanzania, there was broad acceptance among a wide range of stakeholders including youth, parents and teachers about the normative feasibility of children in the role of health change agent. These participants indicated that children can be important ‘resource persons’ because of their access to education, especially in a developing society (Mwanga *et al.*, 2007). Furthermore, research with individual mothers and daughters in low-income neighborhoods in South Africa

and the USA suggests that despite inevitable conflict present in the mother–daughter relationship, there is a willingness of daughters to share, and mothers to listen to, potentially life-saving cancer information (Mosavel *et al.*, 2006; Mosavel and Thomas, 2009).

Recent research findings support the premise that young people can influence the health behaviors of adults. For example, a study conducted in Turkey found that daughters attending university were able to teach their mothers about breast self-examination (Gürsoy *et al.*, 2009). Mothers knowledge level about breast cancer increased two-fold after information was provided by their daughters ( $p = 0.000$ ). Clearly, there is growing interest and evidence that young people have the willingness to influence their parent’s risk behaviors and, more importantly, that their parents may actually listen to them. There is a paucity of research about adolescent daughters teaching their mothers about cancer prevention and this paper is an attempt to address these knowledge gaps.

While there are many areas of health promotion, such as smoking cessation (Winickoff *et al.*, 2003) or diet (Ransdell *et al.*, 2001), where the parent can benefit from advice, the goal of this research is to explore the rationale for adolescent daughters providing cervical cancer information to their mothers. Despite the advances in reducing cervical cancer mortality in many developed countries, cervical cancer remains a disease from which women in many developing countries frequently die (Baillie *et al.*, 1996; Drain *et al.*, 2002; Bradley *et al.*, 2004).

In South Africa, where this research was conducted, cervical cancer is currently the second most common cancer from which Black women die (CANSA, 2005; Anorlu, 2008; Denny, 2008). The motivation for exploring a daughter-initiated intervention is largely guided by research indicating that many adult women, especially in low-income communities and in developing countries, remain unaware of the importance of preventive screening for cervical cancer (Fonn *et al.*, 2002; Mqoqi *et al.*, 2004; Anorlu, 2008). In addition, many women do not obtain screening because they know little about cervical cancer or are fatalistic about their health (Lartey *et al.*, 2003; Noor-Mahomed *et al.*, 2003). These factors provide a critical impetus for developing health promotion strategies that can break this cycle of ‘not knowing,’ and provide the possibility that a new

generation of women will know the importance of regular screenings.

In this paper, we explore the willingness of adolescent daughters to give their mothers cervical cancer information, and their mothers' stated intent to obtain a Pap smear if their daughter asks them to. Furthermore, we qualitatively examine the reasons why mothers would get a Pap smear if their daughter asked them to do so, and why daughters would be willing to share such information with their mother. This exploratory study facilitates the long-term research goal to develop a cervical cancer intervention targeting two generations: mothers and daughters.

## METHODS

### Setting

The setting for this research was Masidaal,<sup>1</sup> a peri-urban community north from the center of Cape Town, South Africa. Masidaal is a community of ~50 000 to 90 000 (Adonis *et al.*, 2000) residents, and is divided into at least six neighborhoods. Up to 50% of residents in this community are unemployed or underemployed. However, despite the permeable presence of poverty and crime, Masidaal is a vibrant community. An interesting aspect about Masidaal, in the South African context where different races could not live in the same neighborhood until relatively recently, is that both Coloreds<sup>2</sup> and Blacks, as specified by past apartheid laws, lived within the same community. We received institutional review board approval from our local institution as well as from the Department of Education in the Western Cape to conduct this research.

### Participants

All participants resided in Masidaal. Study participation was limited to mother–daughter dyads. Daughters were in grades 8, 9 or 10 and

their mothers were 30–60 years of age. The age range for daughters was selected at the request of the Department of Education in South Africa. The target sample size was 348. In previous research with this population, we found that at least 40% of those sampled did not respond or were not eligible. To ensure that we would have an adequate number of dyads in this study, we over sampled. We used proportional random sampling from class lists provided by the four high schools. Our consent procedure included conducting informational meetings at the school. Girls who expressed an initial interest were provided with an informational letter from the school principal and statement of interest forms for the mother to sign. Cognizant of the literacy levels, we did not want to send a consent form home without the opportunity to explain the process and the study in a face-to-face context. The return rate for the statement of interest was low (50%), and we subsequently conducted home visits to those who indicated initial interest.

Of those 348 randomly selected learners, 241 (69%) attended the informational meetings. Twelve percent of daughters declined participation, and 23% of mothers declined participation after their daughter initially expressed interest. We successfully enrolled 65% of mother–daughter dyads. We provided a cash incentive of R50 (~\$5) to mothers and daughters received R30 (\$3.50)

### Questionnaire

We developed a semi-structured survey with ~40% open-ended responses. Survey questions were based on findings from previous research (Mosavel *et al.*, 2006) and literature on parent–child connectedness and cancer screening knowledge (Wood *et al.*, 1997; Lee, 2000; Aronowitz and Morrison-Beedy, 2004; Byrd *et al.*, 2004). The survey had three primary sections that overlapped in both the mother and daughter surveys. These sections focussed on the mother–daughter relationship, cancer knowledge and giving and receiving health advice. This paper examines the section that focus on giving and receiving health advice. The surveys for both mother and daughter were lengthy, with ~100 questions each.

We pilot tested the survey twice with 31 mother–daughter dyads ( $n = 62$ ). Question content, length of questions and question flow

<sup>1</sup> Not the community's real name.

<sup>2</sup> Although the Population Registration Act of 1950, which authorized registration by race, was repealed in 1991, the majority of South Africans continue to self-identify by race. Our use of these racial categories reflects the historical background of participants, their continued attempts at self-identification and the remaining legacy of apartheid.

were modified accordingly. Language was a key consideration in the design and implementation of the study. All the study materials were prepared and offered in three languages, English, Afrikaans and Xhosa. All materials were developed and verified by local experts. As a result of pilot testing, we also discovered the need for cancer information and counseling referral for participants. We developed a resource pamphlet identifying accessible services in Masidaal and surrounding areas. These pamphlets were given to all respondents after each interview.

Mothers and daughters were interviewed separately. All interviews were audio taped and transcribed. Thirty percent of all non-English interviews were randomly selected for back translation to ensure accuracy of the original translation, including semantic equivalence. The results of this paper are largely qualitative.

### Data analysis

Prior to asking daughters about their willingness to share early detection information about cervical cancer, we provided a brief explanation that read as follows: 'Cancer of the cervix can take many years to develop and it is treatable. It begins with changes in the skin that covers the mouth of the womb (the cervix). These changes can be found by a simple test, called a Pap smear or Pap test, which is done by a doctor or a nurse. If cervical cancer is found early enough, the woman can be treated.' The question that was asked of daughters was, 'If you were to learn about cervical cancer in school or from a nurse, how willing would you be to give your mother advice about cervical cancer?' Responses options were: very willing, willing, somewhat willing and not willing.

Toward the beginning of the survey, we asked mothers if they had ever heard of a test that can check for cancer of the womb or cervix. Mothers were then asked questions about their Pap smear history. Prior to asking mothers if they would listen to their daughters' advice about a Pap smear, we provided them with a brief description of cervical cancer and a Pap smear. Mothers were asked, 'If this daughter asked you to get a Pap smear, what would you do?' Daughters were asked the reversed, 'If you asked your mother to get a Pap smear, what would she do?' Response options were: *Definitely have a Pap smear*, *Think about having a Pap smear* and *Pay no attention to the*

*advice*. At the end of each question, we asked 'Please explain,' allowing the mothers and daughters to elaborate on the reasoning behind their selections. We used a grounded approach. We manually coded the data and identified emerging themes. The process of coding the open-ended questions consisted of a series of steps that lead to the formation of mutually exclusive categories. Two coders read the responses and independently decided on the emerging theme or category that the response captured. Next, the two coders compared and discussed their themes including their rationale for deciding on one theme versus another. Through discussion and evaluation of the rationale, the coders mutually agreed on the theme that best described the response. Despite creating mutually exclusive categories, some questions were double coded in order to capture the duality of the response. The consensus rate for the open-ended questions was ~93%, and discrepancies were handled by having a third coder review the response and decide on the appropriate category *without* prior knowledge of the original two coders' choices.

### RESULTS

One hundred and fifty seven mother–daughter dyads ( $n = 314$ ) participated in this study. The average age of daughters was 15 ( $SD = 1.8$ ) and most of them were in grade nine ( $SD = 0.8$ ). The average age of the mothers was 40 ( $SD = 6.5$ ) and the average highest grade completed was 9 ( $SD = 2.4$ ). The majority of women (83%) reported that they were the biological mother of the participating daughter. Slightly more than half (51.3%) identified as African or Black, and 43% identified as Colored. Sixty percent of mothers reported that they had a husband or boyfriend living in the home, and 67% of them said that their boyfriend or husband lived at home most of the time. Mothers reported an average of six people living in the household, with the number of household members ranging from two to thirteen. Half of the mothers said that they were unemployed and looking for work. Of the 50% who said they are working, only half reported having full-time employment (i.e. only 25% of the total sample work full-time). Accordingly, 77% of mothers said they were unable to, or could only meet some of the

basic needs of their family. On average, mothers have lived in Masidaal for nine years (SD = 4.2). Interviews with mothers lasted 2 h (median = 120 min, SD = 21.2) while daughter interviews were 60 min (median = 60 min, SD = 14). We also asked daughters to identify their sources of information about cancer. More than half (54%) said they heard information about cancer from their teachers, 43% from television, 34% from their mother, 28% from friends and 26% from the print media.

### Pap smear history

Twenty two percent of the mothers reported that they have never had a Pap smear (See Table 1). Almost 25% said that they had a Pap smear within the last year, while 17% said they had a Pap smear seven or more years ago. The overwhelming majority of daughters (90%) reported that they had never heard about cervical cancer or cancer of the womb. Similarly, 92% of daughters reported that their mother had never talked to them about cervical cancer or Pap smears.

### Mothers

A thematic analysis indicates that more than two-thirds of mothers overwhelmingly indicated that they would respond to their daughter's request. A variety of reasons were offered when asked why they would respond, including that it would be to her own benefit (53%) and *it was her duty to listen to her daughters' advice* (24%). The main reason given by the 25% who said they would think about having a Pap smear was that *they needed time to think about the relevancy of the information* (see Table 2 for an overview of the themes).

**Table 1:** Time since last Pap Smear

When last did you have a Pap smear	Percent
Within the last year	24
2 years ago	13
3–6 years ago	24
7–10 years ago	7
More than 10 years ago	10
Never had a Pap smear	22

*Why would mothers get a Pap smear if asked by their daughters?*

*Beneficial to the mother's own health.* Slightly more than half of the mothers (53%) stated that it would be in their own interest to listen to their daughters' advice to get a Pap smear. Relevant comments included, 'It's for my own good to see whether I have any infections or sicknesses,' 'I will definitely have a Pap smear because it is for my own health,' and, 'I will know if I am healthy and... I will know for sure what is wrong with me... I can know my health status.'

*Duty to listen to daughter.* Some mothers (21%) indicated that they would be motivated by the daughter's concern, and also felt that they have a responsibility toward their daughters to obtain a Pap smear. This is illustrated through responses such as, 'I must think of my child because she brought something and I must accept it. She worries about me.' One mother said she would get a Pap smear to show respect, 'Well, if they are concerned about my health, why shouldn't I go just to please them; just to make them feel if I do listen to them and I do care about their opinion [and] what they have to say. So if I'm not doing then she will feel like I don't listen, I'm not listening to her or maybe she's concerned about my health.'

*Mothers who were unsure.* Of the 25% of mothers who said they will *think* about having a Pap smear if their daughter were to ask, most of them said they needed time consider if they needed one. These mothers said they would evaluate the relevancy of the advice, for example, 'when last did I have a Pap smear,' to

**Table 2:** Why adolescent daughters can teach their mothers about early detection: emerging main themes

Reasons mothers would get a Pap smear if asked by daughters	Reasons daughters would give their mothers advice
Beneficial to the mothers health	Beneficial to the mothers health
Duty to listen to daughter	Sense of responsibility
	Others in the community may benefit
	Opportunity for mother–daughter learning

evaluate the information. Evaluation included assessing the relevancy of the advice to her, the date of last Pap smear, access, availability, timeliness and necessity.

*Mothers who said no.* Two of the 157 mothers said that they would not be willing to get a Pap smear if asked to by their daughter. One said that she did not trust her daughter's source of knowledge (the school), while the other said that the Pap smear information would be irrelevant to her since she had her womb removed.

### Daughters

The majority of daughters (82%) said they would be very willing to give their mother advice about cervical cancer, 9% said somewhat willing and 9% said that they would not be willing. The main reasons given by the 82% who were willing included, the screening information would be beneficial to the mother's health, daughters felt responsible to share this information with her mother, the potential to learning something with her mother, sharing the information with the mother would result in a greater benefit to others in the community. Daughters who were unwilling to ask their mother to have a Pap smear reported feeling unqualified, fearing a negative reaction and feeling uncomfortable talking about a Pap smear.

#### *Why were daughters willing to give their mothers advice about cervical cancer?*

*Beneficial to mother's health.* Many daughters (43%) expressed concern for their mothers' well-being. This view is illustrated through responses such as, 'I think it is something that will help her and I think it is important for her to know about cervical cancer.' Providing such information would allow the mother to make good health decisions as indicted in this comment, 'Because if [mother] has it [cervical cancer] she must go for a test before it gets out of hand. I will tell her to go; maybe there are not signs yet.' For some, good health means a longer lifespan as demonstrated by this daughter's comment, 'Because I would be glad to see my mother being a grandmother to my kids.'

*Responsibility.* About one-third of daughters (36%) indicated that they would feel responsible if they had access to information that could be lifesaving, and there was a sense that they needed to share what they learned. Responses in this category included, 'Because she must know what I know. And it's important,' 'Because I tell my mother, like when the teachers teach us and I'll come and tell my mother everything,' and, 'Because she could learn and I did learn already. She could learn from me'.

*Others in the community may benefit.* Several daughters (36%) mentioned that sharing information with their mothers could lead to more women in the community benefiting from such prevention information. One daughter said, 'She [mother] could learn from it and tell others about it so that they can go to the clinic and check.' Similarly, another daughter said, 'Maybe she can help other people. Maybe when a friend or family has cancer that [what] I told her [about] she can help them.' Another daughter shared her desire for communal learning, 'Because I want her [mother] to know about cancer and maybe she will tell other people.'

*Opportunity for mother-daughter learning.* A few daughters indicated that they would view sharing cervical cancer information as an opportunity to learn more about it with their mothers. Some of their comments included, 'Because she must know what I know. And it's important,' 'Because she could learn and I did learn already. She could learn from me,' 'So that I can learn more about it with her,' and, 'The reason why I say I am willing to talk to my mother is to [see] if I could learn about cancer [from her].'

## DISCUSSION

This research is one of the first studies using a randomly selected sample of mother-daughter dyads to explore the rationale for daughters providing and mothers accepting cervical cancer screening information. There are two main findings reported in this paper. First, mothers and daughters do not always agree, nor do they evaluate each others behavior in the same way. In this study, the daughters were more

conservative in their estimations regarding the mother's likelihood to obtain a Pap smear based on their advice. They were more likely to believe that their mothers would *think about* their advice as oppose to take their advice. On the other hand, mothers were more likely to say that they would obtain a Pap smear based on their daughter's advice. Conversely, there was a small group of daughters who believed their mothers would get a Pap smear based on their advice, while the mothers said they would *think about* it. These gaps in mother–daughter perceptions suggest that further research is needed to examine how these perceptions translate into screening behavior.

Second, this study provides important insights into the rationale for why mothers would listen to their daughters' advice to obtain a Pap smear and why daughters would be inclined to give such advice. The subtext for this rationale is a mother–daughter relationship that has often been depicted as a relationship mostly of differences and conflict (Pinquart and Silbereisen, 2002). However, these results suggest that this relationship has strong potential for daughter-initiated health promotion purposes, the promotion of cancer screening in particular. The intergenerational health promotion opportunities are underscored by the low screening rates of women in this study. These low rates were reported despite the South African health care policy which makes provisions for three free Pap smears for women 30 years or older in their lifetime (DOH, 2002; Smetherham, 2003). The vast majority of daughters said their mothers had never talked to them about cervical cancer or Pap smears, thereby clearly indicating that this is not a topic mothers educate their daughters about. Developing interventions that address this knowledge gap on both sides are supported by recent research suggesting that misinformation and lack of knowledge continue to be a problem among many South African women, especially with regard to cancer screening (Moodley *et al.*, 2009; Mosavel and Oakar, 2009).

Intergenerational health promotion interventions, especially those initiated by young people, have the potential to address the fatalistic beliefs of elders. Young people may have a tendency to be more open to the advances of technology, the potential of science and, therefore, the harnessing of evidence-based practices. Young people are perhaps in the ideal position

within the family to normatively question fatalistic beliefs. Their access to education, often highly valued by their elders and the known trait of most young people to question and search for 'new' knowledge makes them ideal conduits to help promote evidence-based preventive behaviors. Furthermore, the emotional bond between mother and daughter and the pride associated with their daughters' newly acquired knowledge may motivate mothers to explore and question their own fatalistic health beliefs. Future research needs to examine the potential influence young people may have in assisting their elders to examine fatalistic health beliefs. It is important to acknowledge that there were a few mothers (<2%) who indicated their unwillingness to obtain any health advice from their daughter that she learned about in school. Although not determined in this study, it is possible that this hesitancy may be related to the source and issues of trust and credibility about the school providing health information (Motola, 1995).

Interestingly, a small number of daughters indicated that their willingness to share screening information with their mothers would be motivated by their desire to increase opportunities for communal learning. Values of collectivism and community are important cores in the South African context (Dickow and Møller, 2004) and this might help explain why some mothers felt duty bound to listen and daughters indicated that it was their responsibility to listen. It could be that providing lifesaving screening information about cancer may be seen as an aspect of social responsibility. Furthermore, the interdependencies required to manage daily live in a poverty-stricken neighborhood might further increase feelings of social responsibility and duty, especially when early detection (Pap smear) can assist in screening for cervical cancer.

In sub-Saharan Africa, as well as in other developing countries, cervical cancer remains a major public health concern where the incidence and mortality rates for this cancer is still relatively high compared to that of the USA and other more developed countries (Anorlu, 2008). Concerns regarding lack of access to screening resources as well as limited educational efforts contribute to high incidence and mortality rates in these countries (Garcia *et al.*, 2007). Nonetheless, it is encouraging that efforts to distribute factual information are at

work. Daughters in this study do report hearing most of their cancer information from teachers.

The generalizability of these results may be limited in that while the mother–daughter relationship is universal, most of the mothers in this sample likely have very poor access to medical care in comparison to low-income women in more developed countries. Nonetheless, there are some similarities to mothers and daughters in more urbanized and developed countries worth noting, for example, daughter initiated health advice is feasible in many other contexts as well. Forty percent of the mothers in the sample reported that they were the head of the household, which may be similar to other low-income, urban households in the USA. Furthermore, in this study, daughters who participated had already obtained the same education level as the mothers' reported highest level of education. This, too, may be similar to some low-income and immigrant families in urban cities where mothers may have a low level of education. In fact, similar results were found in research conducted in the USA with African-American and Hispanic mothers and daughters (not dyads) (i.e. mothers report being open to receiving health advice) ([Mosavel and Thomas, 2009](#)), thus suggesting there may be similarities in the mother–daughter relationship itself.

As for the sample itself, one limitation is that there may have been a selective attrition bias since mother–daughter dyads who agreed to participate could have had a better relationship than those who declined participation. However, we did not collect any data on the mother–daughter relationship of those who declined participation. It is reasonable to assume that mothers and daughters who already have high levels of agreement or cooperation would be more likely participate, resulting in the higher rates of agreement. A daughter-initiated intervention would only have high potential to be effective, if both mother and daughter indicate a willingness to work together; thus, this self-selection bias is inherent for this type of study or intervention.

Furthermore, this study only measured willingness to engage in screening behavior based on the daughters' advice, as opposed to actual screening behavior and willingness to engage in other health promoting behavior at the behest of the daughter. Nonetheless, intent to share and act on advice was high and indicates

promise for future research that studies the upward flow of communication from daughter to mother. Future research will assess actual behavior of mothers in response to a cervical cancer screening message from their daughters.

While this area of research indicates promise, there are still many unanswered questions. The congruence of mother–daughter perceptions and how it might predict behavior is an interesting area for future research. Also, examining the characteristics of those who flatly say they would not respond to daughter-initiated information is interesting. Focusing on those not motivated to engage in health behaviors can help to develop the profile of those mothers and daughters most interested and motivated. In addition, the concepts of duty and responsibility as important values underpinning motivations to engage in health behaviors are worth exploring further. In other words, to what extent can one's sense of duty and responsibility compel someone to engage in a healthy behavior? The parent–child relationship undoubtedly encapsulates values such as duty and responsibility as important cornerstones—and thus, of interest is the extent to which these values can be utilized for health purposes.

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