

BMJ Open Can patients be 'attached' to healthcare providers? An observational study to measure attachment phenomena in patient-provider relationships

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ABSTRACT

Objectives: To develop and assess the validity of measures of patients' attachment-related perceptions of experiences with healthcare providers (HCPs).

Setting: Online survey.

Participants: 181 people provided consent and 119 completed the survey (66%). Most participants were women (80%).

Primary and secondary outcome measures:

Questions were developed to assess possible attachment functions served by an HCP and patients' attachment-related attitudes towards an HCP. Scales were constructed based on exploratory factor analysis. Measures of adult attachment, therapeutic alliance, perceived HCP characteristics and health utilisation were used to validate scales.

Results: Possible safe haven and secure base functions served by HCPs were strongly endorsed. A model with good fit (root mean square error of approximation=0.056) yielded 3 factors: 'HCP experienced as supportive and safe' (SUPPORT, $\alpha=0.94$), 'HCP experienced as aversive' (AVERSE, $\alpha=0.86$) and 'more and closer contact wanted with HCP' (WANT, $\alpha=0.85$). SUPPORT was correlated with positive HCP characteristics and not with attachment insecurity. AVERSE was inversely correlated with positive HCP attributes and correlated with attachment insecurity. WANT was unrelated to positive HCP attributes, but correlated with attachment insecurity. Frequency of HCP contact was related to WANT (Kruskal-Wallis=21.9, $p<0.001$) and SUPPORT (Kruskal-Wallis=13.2, $p=0.02$), but not to AVERSE (Kruskal-Wallis=1.7, $p=0.89$).

Conclusions: Patients attribute attachment functions of secure base and safe haven to HCPs. SUPPORT is related to positive appraisal of HCP characteristics; AVERSE is associated with discomfort in the HCP relationship that is related with perceived HCP characteristics and patients' insecure attachment; WANT is associated with unmet needs for connection with an HCP related to insecure attachment, but not to perceived HCP characteristics. These scales may be useful in studying the application of attachment theory to the HCP-patient relationship.

INTRODUCTION

Virtually all medical investigation and treatment occurs within interpersonal

Strengths and limitations of this study

- This study provides tools to directly assess patients' attachment-related perceptions of experiences with healthcare providers other than psychotherapists.
- Patients attribute characteristics to healthcare providers that are associated with the attachment functions of secure base and safe haven.
- A measure of patients' attachment-related perceptions of healthcare relationships shows indications of internal consistency and convergent validity.
- Patient experiences of dissatisfaction and discomfort with a healthcare provider may be influenced by provider attributes and patient attachment insecurity. Patient experiences of wanting more closeness and contact than is available are related to patient attachment insecurity but not to provider attributes.
- The study is limited by measuring only patient perspectives, employing an anonymous online survey method and a non-representative study population.

relationships, especially the healthcare provider (HCP)-patient relationship. Much research has demonstrated the importance of effective communication¹ in those relationships, as well as the negative impact of interpersonal difficulties between patients and HCPs. Poor communication and interpersonal discord can lead to patient dissatisfaction,¹ patients being identified as 'difficult',² malpractice claims,³ medication errors⁴ and poor patient outcomes with respect to emotional health, symptom resolution, physiological measures and pain control.¹ This research emphasises techniques and behaviours that facilitate or impede good communication, specific characteristics, such as HCP empathy,⁵ the HCP-patient alliance⁶ and the value of patient-centred care.⁷ Psychological theories of relationship may provide another useful framework for understanding what happens between HCPs and



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patients. In this paper, we view HCP–patient relationships through the lens of adult attachment theory.

Attachment theory describes the development of close bonds between infants and parents in which a parent serves to regulate the infant's sense of safety and security by providing protective and soothing contact at times of distress and by providing a 'secure base' from which the infant can explore their environment. Oscillations between an infant's independent exploration and return to the 'safe haven' of proximity to a parent are facilitated by the infant's separation protest and proximity seeking (expressed in different ways at different stages of development) and by parental responsiveness to infants' signals of need.⁸ In this context, individual differences in attachment behaviour develop, manifested as stable patterns that preferentially emphasise, for example, expression versus suppression of separation protest, or a greater or lesser tendency towards seeking proximity.

Attachment bonds are also found between adults, typically between committed romantic partners.^{9–10} Adult partners can act for each other as 'attachment figures' who increase feelings of security by providing safe haven and secure base functions, although these take different forms in adults than in infants. In spite of developmentally appropriate changes in attachment functions, their purpose is similar across the lifespan: a safe haven continues to refer to providing comfort in the face of threatening circumstances and secure base continues to refer to a metaphoric place of confidence from which to explore the world independently. Attachment figures are also distinguished from other adults in that they are the foci of separation protest and proximity seeking, which refers to the experience of missing an attachment figure when he or she is away and trying to regain proximity.¹¹ Importantly, in child–parent attachment and in romantic attachment, an attachment figure is not substitutable. This means that attachment functions are provided by particular people. Thus, unlike material support, which could be provided by any person who behaves in the appropriate manner, safe haven and secure base functions are only provided by a small set of individuals.

Adult romantic attachment is characterised by fairly stable patterns of interpersonal dependence or independence, expression or suppression of distressing affect, and capacity to communicate an emotionally charged narrative coherently.⁹ These patterns are measured and described in various ways,¹² but a common approach in health research is to characterise two dimensions of attachment insecurity: attachment anxiety and attachment avoidance. High attachment anxiety implies dependency, proximity seeking and amplified expression of distress. High attachment anxiety is also characterised by narrative incoherence as a result of affectively charged descriptions with multiple, fragmented ideas, a lack of logical organisation and too little effort to orient the listener to timelines, the roles of characters and important aspects of context. High attachment avoidance, on the other hand, is

characterised by interpersonal distance, suppression of distress and narrative incoherence due to a lack of details, examples and reflection.¹³ In this two-dimensional approach to describing attachment, *secure attachment* is a balanced and flexible approach to emotional expression and interpersonal closeness plus narrative coherence, represented by low attachment avoidance and low attachment anxiety.¹⁴

Insecure adult attachment has been studied as a contributor to health and healthcare outcomes for over 20 years.^{15–17} There is consistent evidence that adult attachment insecurity is correlated with physical symptoms,^{17–18} the prevalence of several medical conditions,¹⁹ healthcare utilisation¹⁷ and difficulty in the HCP–patient relationship.^{20–21} At first pass, the association seems odd; why are health outcomes linked to dynamics in romantic relationships? One way of understanding this is that they are each a manifestation of underlying attachment dynamics. In this hypothesis, individuals with insecure patterns of romantic attachment are especially attentive to signals of potential threat, including internal signals (ie, symptoms). At times of health-related threat or distress, individuals direct attachment attitudes and behaviours (proximity seeking or avoidance, trust or distrust, expression or suppression of distress) towards HCPs in a manner similar to the way they would react towards a romantic partner if distress occurred in that context.^{17–22} This would explain why variations in healthcare utilisation¹⁷ and perceived difficulty in HCP–patient relationships,²⁰ in particular, might be correlated with patterns of romantic attachment.

This perspective implies that an HCP can serve attachment functions for a patient, at least some of the time. Understanding an HCP as an attachment figure is a novel perspective that may illuminate HCP–patient interactions. In adult attachment theory, a person who serves all four of the basic attachment functions (providing safe haven and secure base and being the object of proximity seeking and separation protest) is said to share a 'full-blown attachment bond'.¹¹ It has also been demonstrated, however, that some people (eg, close friends) can serve certain attachment functions without serving others.²³ We hypothesise that HCPs serve some attachment functions for patients under some circumstances. This implies that an HCP–patient relationship may provide a partial and asymmetric attachment bond. It is partial in the sense that it provides some but not all attachment functions, and asymmetric because the HCP serves attachment functions for the patient, but not vice versa.

The hypothesis that patients use HCPs to serve attachment functions suggests that there may be some degree of isomorphy between patterns in romantic relationships and in HCP–patient relationships. By isomorphy, we mean that a person with high attachment anxiety and low attachment avoidance, whose approach to romantic relationships is characterised by dependency and proximity seeking, directs a similar interpersonal strategy

towards HCPs when experiencing health-related fear, which results in high healthcare utilisation and difficult HCP–patient interactions. Similarly, a person with high attachment avoidance and low attachment anxiety approaches both romantic and healthcare relationships with caution, favouring autonomy over acknowledgement of vulnerability. This may result in lower healthcare utilisation and in elevated HCP–patient difficulty, especially in circumstances in which providers desire more information and a closer collaboration. These predictions are consistent with correlations that have been found between patterns of attachment and overutilisation or underutilisation of healthcare and mutually frustrating interactions.^{17 24–26}

While the hypothesis that patients can be attached to HCPs has previously been explored in the realm of mental healthcare,²⁷ it is not commonly invoked to understand other healthcare relationships. Studies of the hypothesis are limited, in part, because there is currently no valid measure of attachment behaviour and attitudes in most healthcare relationships. The purpose of this study, therefore, is to develop and assess measures of two aspects of a hypothesised partial and asymmetrical patient–HCP attachment relationship. Aim 1 is to develop a measure of the degree to which HCPs serve attachment functions. This aspect is potentially independent of patients' attachment style, in that HCPs could, for example, provide a safe haven function for all patients irrespective of their degree of secure or insecure attachment style. Aim 2 is to develop a measure of the degree to which patients report various attachment-related attitudes or preferences towards HCPs. Here we refer to patient preferences for proximity seeking versus distancing, expressing versus suppressing distress and comfort versus discomfort with using an HCP to provide attachment functions. The isomorphy hypothesis suggests that such attitudes or preferences directed towards HCPs will mirror similar preferences or attitudes towards partners in a full-blown attachment bond.

METHODS

Development of measures

Aim 1: does an HCP serve attachment functions?

To our knowledge, there was no previous measure to determine if an HCP serves attachment functions. The WHOTO instrument, however, was designed to assess which persons serve attachment functions for young adults.²³ Therefore, we constructed a survey, the healthcare provider attachment figure (HCP-AF), modelled after the WHOTO instrument. The WHOTO assumed that someone provides attachment functions and aimed to determine who it is. The HCP-AF, on the other hand, was constructed to acknowledge the possibilities that an HCP may or may not serve attachment functions. We provided five statements to be endorsed with yes/no responses. Two items probed whether or not an HCP

has the opportunity to provide attachment functions (my time with this person is important to my well-being; this person might see me at a time when I am in pain or feel worried, anxious or upset). Two items were designed to probe the functions of safe haven (this is a person who I count on for advice; in some circumstances, I might count on this person to help me feel better) and one item probed secure base (this person makes me feel more confident about my health). Since each of the questions may or may not indicate that the HCP's presence serves to enhance the patient's subjective feeling of security, depending on circumstances, we describe these in this paper as 'possible attachment functions'. The HCP-AH did not probe proximity seeking and separation protest with respect to an HCP, because we expected that these would be present in some but absent in many HCP–patient dyads.

Aim 2: measurement of attachment-related attitudes towards an HCP

To our knowledge, there was no previous measure of attachment-related attitudes towards HCPs in general. The Client Attachment to Therapist Scale (CATS),²⁸ however, was designed to assess clients' attachment to a psychotherapist. Therefore, development of the Attachment in Healthcare Settings Survey (AHSS) began by inspecting items from the CATS for their applicability to other healthcare relationships. Items from the CATS were either retained as written, modified by substituting 'HCP' for 'counsellor' (eg, 'my HCP is sensitive to my needs'), deleted (eg, 'I yearn to be at one with my counsellor') or modified more extensively (eg, 'I feel that somehow things will work out OK for me when I am with my counsellor' was modified to 'seeing my HCP leaves me feeling that things will work out OK somehow'). In order to have an adequate number of items and to capture attachment-related attitudes towards HCPs that have been identified in qualitative research,²⁹ new items were also created (eg, 'I don't like it when my HCP is away and I look forward to his/her return'). Three colleagues familiar with attachment constructs and healthcare relationships then blindly rated each item as isomorphic to romantic attachment patterns (or not) and provided feedback on ambiguous or unclear wording. We made a small number of further modifications in response to this feedback. The resulting provisional scale had 37 items. Each consisted of a statement, that is, endorsed on a seven-point scale from strongly disagree to strongly agree.

Survey methodology

We tested the two new instruments in an anonymous online survey. The survey first established consent to collection of anonymous data, as approved by the Mount Sinai Hospital Research Ethics Board, then surveyed demographic characteristics and basic medical information (any medical problem; any barriers to healthcare; number of days of professional contact with a physician

(primary care doctor or specialist) in the last year; frequency of visiting a dentist).

Next, an index HCP was identified. As attachment figures in infant–parent and romantic partner relationships are non-substitutable, we considered it important that attachment-related questions about an HCP were asked about a specific HCP. People in different circumstances have different relationships with HCPs, ranging from few to multiple providers and varying greatly in perceived personal importance. We began with the assumption that attachment functions would be most likely to be served by the HCP who mattered the most to the participant and who was most likely to be present when attachment needs are triggered. Thus, choosing an index HCP was based first on participants' subjective sense of the HCP who mattered most to them. When this criterion was insufficient to select an index HCP (because there was no HCP or more than one HCP who met the criterion), then the additional criteria of frequency of contact and number of HCP-AF items endorsed were used, according to the following process which utilised the skip-logic of web-based survey software (FluidSurveys).

Criterion 1: Participants were asked to choose 'an HCP who matters to you more than others'. If this prompt brought just one HCP to mind, that person was identified as the index HCP. Participants then completed the HCP-AF and subsequent surveys with this HCP in mind.

Criterion 2: If the instruction to choose 'an HCP who matters to you more than others' brought more than one provider to mind, the participant was asked to answer the HCP-AF questions for each of up to three of these HCPs. The HCP with the most 'yes' answers was identified as the index HCP. In the case of a tie, the HCP seen most often was chosen.

Criterion 3: Finally, if the participant indicated 'there is no HCP who matters very much to me' or 'I don't know' they were instructed to choose the provider 'with whom you have had the most contact in the past two years'. This provider was identified as the index HCP, and the HCP-AF and subsequent instruments were completed with this provider in mind. Participants who indicated in this step that they had no contact with an HCP in 2 years were deemed to have no index HCP and did not answer further surveys.

Participants rated the index HCP on 'how much your relationship with this person matters to you, above and beyond his or her technical skills' on a visual analogue scale (VAS; slider) that is anchored on one side by 'I care about his/her technical skills; I don't care how we relate to each other' (0) to 'the quality of our relationship matters very much to me and affects how I feel' (100) on the other side.

Other measures

Adult attachment insecurity was measured with the Experience in Close Relationships (ECR)-M16. The ECR survey is a widely used self-report measure of attachment

anxiety and attachment avoidance in romantic relationships,^{30 31} which has been validated in various health settings.¹² The ECR-M16 uses 16 ECR items, modified to be appropriate to medical patients.³² The main modification is that the instruction draws attention to 'other people with whom you feel close' instead of 'romantic partner(s)' in order to avoid two problems that occur with the ECR and similar instruments in medical settings, that is, patients who do not have a partner sometimes choose not to complete the survey, and patients sometimes feel that questions about romantic relationships are irrelevant to their health concerns. The ECR-M16 has been validated in patients with advanced cancer.³²

HCP–patient alliance was measured with the Human Connection Scale, which is a 16-item scale of HCP–patient alliance in which each item is rated in a four-point response scale.³³ The Human Connection Scale was found reliable and valid in a cohort of patients with advanced cancer.³³

Other perceived characteristics of the index HCP (knowledge/skills, availability, courtesy/professionalism, punctuality, reliability and interpersonal skills) were measured with VAS (sliders).

Two items were used to remove spurious and redundant responses. One item checked if a respondent had filled in the survey previously in order to remove redundant responses. Another item asked respondents if they had answered questions seriously, a step that has been demonstrated to increase the validity of online surveys.³⁴ The seriousness item was modified from its original version (in a survey of political opinions) to 'it would be very helpful if you could tell us at this point whether you have answered the questions in this survey seriously, so that we can use your answers for our scientific analysis: I have taken the questions seriously and my answers reflect what I actually think'.

Population

The study was conducted as a survey of anonymous, self-selected English-speaking participants who accessed the survey via the internet. A url link to the survey was distributed in a snowballing method by various social media platforms (Twitter, Facebook, etc). Those who received the link and those who did the survey were encouraged to further distribute the link. The sample size requirements for exploratory factor analysis cannot be determined with precision in advance. Surveys were collected until more than a 100 completed surveys were available to analyse and then communalities were calculated to determine that the sample size was adequate. Surveys were completed from May to November, 2015. We have no knowledge of the participants other than the information that they provided in the survey. Online surveys have previously been found to have adequate validity with respect to a variety of health phenomena;³⁵ substance abuse has been particularly well studied.^{36 37} Although there are limits on the validity of collecting

data online,³⁸ non-serious responses can be limited with a seriousness check³⁴ and psychometric testing of online measures can serve as a proxy measure of their validity.³⁹

Analysis

Respondents were excluded if they had performed the survey previously, if they indicated that they had not answered questions seriously or if they indicated age < 16 years.

Exploratory factor analysis of the 37 items in the AHSS was conducted according to the recommendations of Fabrigar and Wegener.⁴⁰ The number of factors was first assessed by inspecting the scree plot of an unrotated factor analysis based on Eigenvalues > 1, which suggested a three-factor or four-factor solution, and then by comparing the χ^2 and the root mean square error of approximation (RMSEA) for each solution from one to five factors, and the difference in these statistics from one solution to the next, which again supported a three-factor or four-factor solution. A four-factor solution was then derived using Promax oblique rotation, suppressing factor loadings < 0.20. The fourth factor in this solution had few items loading on it uniquely, several items in which the loading was similar to another factor, and no clear, coherent interpretation. As a result, a three-factor solution was calculated. In this solution, item loadings were suppressed if (1) they were < 0.2, or (2) they were < 0.4 and lower than the loading on a different factor, with a difference of > 0.1, or (3) loadings were similar and weak (~0.3) on two factors with no higher loading on another factor.

Three AHSS scales were constructed based on the results of the exploratory factor analysis, scored as the mean score for all surviving items on each factor, reversing items as appropriate. Internal reliability was calculated using Cronbach's α . One item was removed at this stage because its inclusion reduced the internal reliability of the scale.

The plan to evaluate the AHSS scales was as follows. Internal reliability was tested with Cronbach's α . Construct validity was evaluated by calculating correlations to determine if there was a significant correlation (convergent validity) with the theoretically related constructs of adult attachment insecurity and frequency of healthcare visits (which is higher when attachment anxiety is high and lower when attachment avoidance is high¹⁷). Discriminant validity was deemed to be supported if there was no correlation between AHSS scales and theoretically unrelated constructs indicating a general positive appraisal of the HCP (perception of the index HCP's knowledge/skills, availability, courtesy/professionalism, punctuality and reliability).

The HCP-AF was tested for internal consistency by evaluating the correlation of the sum of endorsed HCP-AF functions with a measure of the degree to which the index HCP was perceived to matter to the participant (VAS from 0 to 100). The correlation of

HCP-AF functions and alliance with the HCP was evaluated as a test of convergent validity (on the assumption that the stronger the alliance is between the HCP and the patient, the greater the potential for an attachment bond).

Analyses were performed with IBM SPSS, V.23 for Windows. Statistical significance was set at $p < 0.05$, two-tailed.

RESULTS

One hundred and ninety-four people visited the consent page and 181 provided consent. Respondents were excluded if they indicated that they had performed the survey previously (3), indicated that their answers were not serious (0), were < 16 years old (0) or exited the survey before answering all items of the AHSS (59), leaving 119 participants whose responses were analysed (61% of those who visited the page, 66% of those who consented).

The characteristics of participants are provided in [table 1](#) and indicate that the prototypic participant is a Canadian female, in her 40s (mean age 47.6 \pm SD 12.8 years), highly educated, married, with an illness requiring monitoring or treatment, no significant barrier to obtaining healthcare, with more than six visits to a physician in the past year and regular (annual or semiannual) dental care.

Identifying an index HCP

Sixty-three participants (53%) indicated that there was only one HCP who came to mind as the one who mattered most, 45 (38%) indicated that there was more than one and 11 (9%) indicated that no HCP mattered very much. Of the latter group, all 11 had visited at least one HCP in the past 2 years, and so no one was excluded because of an inability to identify an index HCP. These three groups are described in [table 2](#). Participants whose index HCP was identified in these three ways did not differ from each other in attachment anxiety or attachment avoidance, nor with respect to whether or not they had a significant medical condition. They did differ in frequency of contact with MDs in the previous year. With respect to HCP characteristics, participants who had just one HCP in mind as the index HCP were more likely than the other groups to identify the HCP as female and a physician. Overall, most participants selected a physician (76%) as the index HCP, and most reported a relationship of long duration (72% more than 1 year and 44% more than 5 years).

Are possible attachment functions attributed to the index HCP?

Five questions which aimed to identify possible attachment functions served by the index HCP (HCP-AF) were strongly endorsed: My time with this person is important to my well-being (N=107, 90%); this person might see me at a time when I am in pain or feel worried, anxious

Table 1 Characteristics of participants

	N	Per cent
Gender		
Male	23	19
Female	95	80
Other	1	1
Education		
Less than college/university	13	11
Bachelor's degree	40	34
Graduate or professional degree	63	53
No response	1	1
Marital status		
Single, never married	30	25
Married or living with partner	69	58
Separated or divorced	15	13
Widowed	3	3
No response	2	2
Location		
Canada	86	72
Australia	13	11
USA	10	8
Other	8	7
No response	2	2
Any illness requiring treatment or monitoring	79	66
No significant barriers to healthcare MD contact, in the last year	98	82
None	2	2
1 day	12	10
2–5 days	41	34
6–10 days	20	17
More than 10 days	43	36
No response	1	1
Frequency of dental visits, in general		
Less than once a year	21	18
About once a year	29	24
About twice a year	50	42
More than twice a year	18	15
No response	1	1

or upset (N=107, 90%); this is a person who I count on for advice (N=108, 91%); in some circumstances, I might count on this person to help me feel better (N=104, 87%); this person makes me feel more confident about my health (N=97, 82%). The median number of HCP-AF items endorsed was 5 (of a possible 5), and the IQR was 4–5. Eighty participants (67%) endorsed all five items.

The number of items endorsed was significantly correlated with a general VAS item measuring the degree to which the participant's relationship with the index HCP 'matters to me' (Kruskal-Wallis=18.9, $p=0.001$), demonstrating internal consistency in the survey, and with HCP-patient alliance (Kruskal-Wallis=16.8, $p=0.002$). The number of possible attachment functions endorsed was not related to attachment anxiety (Kruskal-Wallis=3.5, $p=0.49$) or attachment avoidance

(Kruskal-Wallis=0.51, $p=0.97$). It is noteworthy that the number of possible attachment functions served by the index HCP was related to the criterion by which the index HCP was chosen. For criterion 1 (only one HCP comes to mind as mattering the most), 58 of 63 participants (92%) endorsed four or five out of five possible attachment functions; for criterion 2 (more than one HCP comes to mind) this was found in 35 of 45 participants (78%); and for criterion 3 (no HCP matters very much or I don't know) this was found in 6 of 11 participants (55%, $\chi^2=16.3$, $p=0.04$).

The Attachment in Healthcare Settings Survey

The exploratory factor analysis of the 37 tentative items of the AHSS yielded three factors, which were named 'HCP contact experienced as supportive and safe' (SUPPORT), 'HCP contact experienced as aversive' (AVERSE) and 'more and closer HCP contacted wanted' (WANT). The results of the exploratory factor analysis (EFA) are presented in table 3. The fit of the three-factor solution was acceptable (RMSEA=0.056, mean communalities SUPPORT 0.69; AVERSE 0.78; WANT 0.61). Scales were calculated as the mean score of items loading on each factor in the final EFA model (with items with negative factor loadings reverse-scored). Internal reliability was high (Cronbach's α SUPPORT 0.94; AVERSE 0.86; WANT 0.85). SUPPORT scores were approximately normally distributed around a mean of 5.7 (SD 0.8, possible range 1–7). AVERSE and WANT were non-parametrically distributed and skewed towards low scores (AVERSE: median 1.5, IQR 1–2.1; WANT: median 2, IQR 1.4–2.8).

Relationships between AHSS scales and other variables formed a consistent pattern (table 4). In particular, the SUPPORT scale was positively correlated with every measure of positive HCP characteristics and was not significantly related to patients' attachment anxiety or attachment avoidance. The AVERSE scale was correlated with attachment anxiety and attachment avoidance and was inversely correlated with each measure of positive HCP attributes. The WANT scale was correlated with attachment anxiety and attachment avoidance (more strongly to attachment anxiety), but was unrelated to measures of positive HCP attributes. It is important to note, in particular, that WANT was not correlated with perceived HCP availability ($r=-0.07$, $p=0.45$). None of the AHSS scales was significantly related to gender, education, marital status or age (data not shown). SUPPORT and AVERSE did not differ between participants with or without a medical illness, but WANT was higher among patients with a medical illness ($F=5.5$, $df1$, $p=0.02$).

We also explored how the AHSS scales were related to frequency of contact with the index HCP and to the number of possible attachment functions endorsed for the index HCP. Number of contacts with the index HCP in the past 6 months was related to WANT (Kruskal-Wallis=21.9, $p<0.001$) and SUPPORT (Kruskal-Wallis=13.2, $p=0.02$), but not to AVERSE

Table 2 Patient and HCP characteristics associated with choice of index HCP

How index HCP is selected	1 HCP comes to mind, matters most N=63	>1 HCPs come to mind, index selected by possible AFs N=45	No HCP matters, index selected by frequency of contact N=11	Significance p Value
<i>Characteristics of patient</i>				
Gender, N (%)				
Female	53 (84)	36 (80)	6 (55)	0.06
Male	9 (14)	9 (20)	5 (45)	
Medical illness, N (%)				
Yes	41 (66)	33 (73)	5 (45)	0.21
No	21 (34)	12 (17)	6 (55)	
MD contact in past year, N (%) (days)				
<6	30 (48)	17 (38)	8 (73)	0.004
≥6	32 (52)	28 (62)	3 (17)	
Romantic attachment, mean±SD				
Attachment anxiety	2.8±1.4	3.1±1.8	3.3±1.5	0.43
Attachment avoidance	2.9±1.2	3.4±1.6	3.0±1.9	0.21
<i>Characteristics of HCP</i>				
Gender, N (%)				
Female	39 (62)	21 (47)	3 (27)	0.048
Male	23 (37)	24 (53)	8 (72)	
HCP role, N (%)				
Primary care MD	37 (59)	17 (38)	4 (36)	0.047
Surgeon/specialist MD	18 (29)	11 (24)	3 (27)	
Physiotherapist/social worker/nurse	1 (2)	7 (16)	0 (0)	
Psychologist/counsellor	4 (6)	5 (11)	2 (18)	
Other	3 (5)	5 (11)	2 (18)	
Duration of HCP relationship, N (%) (years)				
<1	20 (32)	8 (18)	5 (45)	0.11
1–4	14 (22)	14 (31)	5 (45)	
≥5	29 (46)	23 (51)	1 (9)	

HCP, healthcare provider.

(Kruskal-Wallis=1.7, $p=0.89$). The number of possible attachment functions provided by the index HCP was related to SUPPORT (Kruskal-Wallis=21.2, $p<0.001$), but not with AVERSE (Kruskal-Wallis=7.3, $p=0.12$) or WANT (Kruskal-Wallis=9.3, $p=0.053$).

DISCUSSION

This survey suggests that it is common for patients to experience HCPs as having characteristics associated with secure base and safe haven attachment functions and that it is possible to measure patients' perceptions of HCP–provider interactions that are related, theoretically and empirically, to insecure adult attachment.

Aim 1

With respect to measuring possible attachment functions served by an HCP with the HCP-AF, results from the survey showed that the sum of endorsed items was correlated with a single-item measure of how much the index HCP is perceived to matter to the participant, which indicates internal consistency between these measures, and with a validated measure of HCP–patient alliance, which is an initial test of convergent validity. The lack of

other validated measures to study this phenomenon is a barrier to more robust tests of convergent validity.

That the number of HCP-AF items endorsed varies between participants who selected their index HCP by three different criteria also supports the validity of the measure. Since attachment figures are non-substitutable, participants for whom a single HCP comes to mind as the one who matters most are the most likely of three groups to be choosing an attachment figure as the index HCP. These participants endorse the most HCP-AF items. On the other hand, participants for whom no HCP comes to mind as mattering most are the least likely to be selecting an attachment figure as an index HCP. These participants endorse the fewest HCP-AF items. Note that bias introduced by the study design, which uses HCP-AF items to choose an index HCP in criterion 2 (thus maximising the number of HCP-AF functions that will be endorsed by participants who use criterion 2), nonetheless leaves criterion 2 participants endorsing fewer HCP-AG items than are endorsed by criterion 1 participants—so the differences between groups cannot be attributed to circularity in study design.

It is not known whether or not HCP-AF items actually indicate that an HCP serves attachment functions. The

Table 3 Results of exploratory factor analysis of 37 tentative items of Attachment in Healthcare Situations Survey

	Factor 1	Factor 2	Factor 3
<i>HCP experienced as supportive and safe (SUPPORT)</i>			
My HCP* is dependable.	0.95		
I feel sure my HCP will be there if I really need him/her.	0.95		
If I were in pain or distressed, I think my HCP would respond in a helpful way.	0.86		
My HCP gives me enough attention.	0.85		
I get enough emotional support from my HCP.	0.82		
My HCP is a comforting presence to me when I am upset.	0.79		
I would rather not see this HCP but I feel that I have no choice.	-0.76		
My HCP is sensitive to my needs.	0.74		
I know my HCP will understand the things that bother me.	0.57		
My HCP helps me to look closely at frightening or troubling things that have happened to me.	0.50		
I suspect that my HCP is not all that concerned about me.	-0.65		
When I am with my HCP, I feel that I am his/her highest priority.	0.63		
I feel safe with my HCP.	0.63		
I can tell that my HCP enjoys working with me.	0.63		
I resent having to handle problems on my own when my HCP could be more helpful.	-0.59		
Seeing my HCP leaves me feeling that things will work out OK somehow.	0.55		
My HCP treats me more like a child than an adult.	-0.52		
<i>HCP contact experienced as aversive (AVERSE)</i>			
Sometimes I'm afraid that if I don't please my HCP s/he will not treat me as well.		0.94	
I don't know how my HCP will react from one meeting/appointment to the next.		0.82	
I am cautious about what I tell my HCP so that s/he will not reject me.		0.75	
I have felt shamed or humiliated when I met with my HCP.		0.70	
I don't like to share my feelings with my HCP.		0.43	
It's hard for me to trust my HCP.	-0.53	0.44	
I suspect that my HCP isn't always honest with me.	-0.48	0.40	
It would make me feel ashamed or foolish to talk over my problems with this HCP.		0.33	
<i>More and closer contact with HCP wanted (WANT)</i>			
I wish I could see my HCP more often.			0.79
I wish there was a way I could spend more time with my HCP.			0.79
I don't like it when my HCP is away and I look forward to his/her return.			0.70
I think about calling my HCP after hours.			0.56
I worry about my HCP's well-being.			0.51
I think about being my HCP's favourite patient.			0.50
I wonder about my HCP's other patients.			0.49
I wish my HCP and I could spend more time together as friends.			0.44
I only feel reassured about my health when I am with my HCP.†‡			0.31

*In the instrument 'HCP' is spelled out, not abbreviated as in this table.

†This item was later removed because it reduced the internal reliability of the scale.

‡Items that do not appear in the final model: 'I think my HCP disapproves of me'; 'I would like my HCP to show me that s/he cares about me more'; 'my HCP wants to know more about me than I am comfortable talking about'.

HCP, healthcare provider.

test of this, which was not probed in the current study, is whether or not the actions and availability of an HCP actually increase feelings of security as they are experienced by a patient who is vulnerable. Since HCP-AF items arguably describe standard features of a clinical relationship, in the absence of further data, the current results may merely serve to reframe common characteristics of a clinical relationship as attachment functions. However, since it should be possible to study the effect of these HCP characteristics on patients' perceptions of security, we believe this is an empirical question and not simply a semantic one. Furthermore, if the HCP-AF does measure HCP attachment functions, then the lack of association between the HCP-AF and patient attachment

insecurity suggests that HCPs serve safe haven and secure base attachment functions for many patients, irrespective of attachment type.

Aim 2

With respect to measuring attachment-related phenomena in patient's perceptions of HCPs, the study's results provide support for the AHSS. Regarding the validity of the AHSS, in general an interaction between a patient and an HCP is obviously influenced by the characteristics of both people. Hence, the relationship of AHSS subscales to patient and provider characteristics (albeit each measured from the patient's perspective in this study) is important. We found that patient and provider

Table 4 Correlation between AHSS scales and other variables (Spearman's rho)

	SUPPORT	AVERSIVE	WANT
Patient perception of self			
Attachment anxiety	-0.19	0.29**	0.50***
Attachment avoidance	-0.17	0.33**	0.29**
Patient perception of positive HCP attributes			
HCP interpersonal skills	0.58***	-0.44***	0.10
HCP availability	0.42***	-0.30**	-0.07
HCP punctuality	0.39***	-0.21*	0.06
HCP reliability	0.51***	-0.33***	0.02
HCP technical skills	0.60***	-0.29**	0.04

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

AHSS, Attachment in Healthcare Situations Survey; HCP, healthcare provider.

characteristics were related to the three AHSS subscales in quite different ways.

SUPPORT taps into positive HCP characteristics, and is unrelated to patient attachment insecurity or demographic characteristics. Thus, SUPPORT appears to be primarily determined by the HCP's role and characteristics. The significant correlation between SUPPORT and the number of HCP-AF items endorsed may indicate that they measure a common construct, which we interpret as providing a safe haven and secure base (bearing in mind the caveats expressed above). Patients' perceptions that an HCP serves these functions are related to a range of other positive HCP characteristics, which are not theoretically related to attachment. This may indicate that serving as a safe haven and a secure base is most common in HCPs with a wide range of skills and positive characteristics, but may also be influenced by a general patient bias towards positive appraisal of HCPs. From the perspective of attachment theory, a generally positive appraisal may be driven by the patient's (current or anticipated) need to depend on the HCP for protection, solace and healing.

Unlike SUPPORT, AVERSE taps into health-related experiences of shame, fear and mistrust, and is related to HCP and patient characteristics. These results suggest that the AHSS may be useful in studying aversive experiences between patients and HCPs in which there are contributions from both parties. It is easy to imagine or recall HCP-patient relationships in which patients' aversive experiences are driven by poor interpersonal behaviour on the provider's part, heightened sensitivity on the patient's part or both. An attachment framework reminds us of the difficulty that can be experienced in an interaction which involves a challenging combination of personal vulnerability, a power imbalance and a need to coherently describe one's situation under stress. It is common for adults with high attachment anxiety and/or high attachment avoidance to find interactions of this

kind to be fraught with difficulties and anticipate poor outcomes. Indeed, previous research consistently shows that patients with insecure attachment report more distrust of physicians⁴¹⁻⁴⁴ and the AVERSE scale appears to tap into these negative perceptions.

Finally, WANT is a scale that indicates an unmet desire for closer and more frequent contact, which is related to patients' insecure attachment but not to perceived HCP characteristics. WANT was more strongly associated with attachment anxiety than with attachment avoidance, as would be predicted from the principle of isomorphy, because the WANT scale taps into aspects of patients' proximity seeking and separation protest, which are phenomena most often seen in attachment anxiety. Proximity seeking and separation protest, as expressed in WANT, are not related to the perceived unavailability of the HCP, as measured directly, which is consistent with these perceptions being an expression of attachment insecurity rather than merely a reaction to actual deprivation. The correlation between AVERSE or WANT and patient attachment insecurity provide evidence for the convergent validity of the AHSS.

Strengths and limitations

This study is a first step towards directly measuring attachment-related aspects of HCP-patient relationships in general (non-mental health) clinical relationships. The AHSS has psychometric characteristics that suggest that it has internal reliability, and correlations with measures of attachment insecurity and healthcare utilisation that support its validity. Nonetheless, the study has several limitations. By employing an online survey, we are limited in our knowledge of participants to the information that they provide, and ultimately have no safeguard against deliberate deception. Furthermore, all measures used were completed from the patient's perspective, which means that there is a risk that correlations are inflated by common method bias. Sampling from the patient's perspective also prevents assessing the influence of HCP attachment style on the HCP-patient interaction generally and on patient AHSS responses in particular. In theory, attachment dynamics are influenced by both members of a dyad and so this is an important gap. Our sample is not representative of the general population, being skewed towards higher education and women. With respect to unmeasured biases, it is likely that an online survey of HCP-patient relationships has greater appeal to people with an interest in this relationship, who may be biased in having experienced more positive or negative HCP-patient relationships than average. Factor analysis benefits from large samples and so replication in larger and more representative samples is important. Our use, by necessity, of non-validated measures for both assessment of HCP attachment functions and for patient healthcare-related attachment, adds another limitation. Lastly, we do not know if the attributes of HCPs that are consistent with

secure base and safe haven functions actually succeeded in making patients feel more secure.

Relevance and future steps

Reframing common positive HCP characteristics as attachment functions, and certain patient attitudes as expressions of attachment security or insecurity, may help explain why patterns of romantic attachment are consistently found to be predictors of healthcare utilisation and symptom reporting. Furthermore, it may add a new perspective that is valuable for clinicians. It can be helpful to appreciate that activities that appear counter-productive in HCP–patient interactions may be intended to achieve attachment goals, that is, to obtain or maintain the feelings of security that are required to adapt to frightening health circumstances. For instance, one patient's frequently repeated requests for reassurance and another patient's withholding of diagnostically important information may each be characteristic attachment behaviour. Since the attachment system has its roots in early development and has been preserved in many species, presumably due to its evolutionary advantages, it can be helpful clinically to realise that feeling secure in a frightening circumstance is often perceived as a more urgent goal than remaining healthy over a longer timeframe. Furthermore, insecure patterns of attachment interfere with communicating these goals coherently. Thus attachment behaviour that seems at odds with health-related goals may be signalling a need to step back from those goals to attend to the fear that is disrupting collaboration. It may be valuable for HCPs to remember that their interpersonal skills have the potential to provide the safe haven and secure base that allows patients to work constructively and collaboratively towards health-related goals.

Finally, we hypothesise that HCP–patient relationships serve some attachment functions, but do not serve as a 'full-blown attachment bond'. The survey results support the hypothesis that HCPs very commonly serve safe haven and secure base functions. Separation and proximity seeking, as measured by the WANT scale, on the other hand are exceptional when they are present, and are more likely when patients have an insecure attachment pattern. This is a circumstance that is likely to lead to frustration because, unlike romantic relationships, HCP–patient relationships are asymmetric—the bond is not reciprocal, even when the health provider is well attuned and responsive within professional boundaries.²² Our survey did not probe the characteristic of the non-substitutability of the HCP who serves attachment functions, which remains to be explored in future research.

The HCP-AF and AHSS may allow the attachment-related aspects of HCP–patient relationship to be studied more directly. However, replication is required and the limitations of this first study indicate that research is needed in a more fully characterised cohort. The consistency of the results, however, suggests that such research is warranted.

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