

HIGHLIGHTS

- 'Psychosocial Context' predicts the satisfaction with care of young patients
- Young patients from China are less satisfied with care than those from Australia
- Young patients from Italy have the lowest score on 'Psychosocial Context'

**Patient Centred Consultation, Satisfaction and Young Patients:
A Cross-Country Analysis**

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ABSTRACT

Objectives: The aim of this study was to investigate the link between perceived dimensions of patient centred care and the satisfaction of adolescents and young adults within the UK, USA, Australian, Italian, and Chinese healthcare systems.

Methods: One thousand and thirty-four participants (212 from China, 206 from Australia, 208 from UK, 202 from USA, and 206 from Italy) answered a self-report questionnaire assessing the perceived dimensions of patient centred care. Factor analysis (PFA) was conducted on the data to identify relevant dimensions. One-way ANOVAs were run to identify differences between country samples related to perceived dimensions of patient centredness, and a multi-level multiple regression model was computed to assess the link between satisfaction and dimensions of patient centred care.

Results: Countries' mean scores on 'Satisfaction with Care' (PF1) and on 'Psychosocial Context' (PF2) were statistically significant by inspecting the ANOVAs ($p < .05$). Satisfaction with care was predicted by PF2 and clinical utilization.

Conclusion: An online survey collected meaningful data on perceptions of healthcare received by respondents from five countries. This initial international study highlights important associations worthy of closer investigation.

Practice Implications: Healthcare providers should assess comprehensively the psychosocial context of young patients during consultations.

Abbreviations: OECD, Organization for Economic Co-operation and Development; WHO, World Health Organization; PCA, Principal Component Analysis; PC1, Principal Component 1; PC2, Principal Component 2; PC3, Principal Component 3; PDRQ-9, Patient-Doctor Relationship Questionnaire; PCMH, Patient Centred Medical Home Survey; UK, United Kingdom; USA, United States of America; AU, Australia; SPSS, Statistical Package for Social Science; ANOVA, Analysis of Variance.

Keywords: Patient centred care, adolescents, communication, satisfaction, international.

1. INTRODUCTION

The concept of patient centredness in health care has been the subject of an ongoing debate in relation to its meaning and definition [1,2,3]. Despite being somewhat difficult to define [4], scientific literature has related the dimensions of patient centredness to patients' health outcomes since the work of Balint [5]. It proposed the concept of the healthcare practitioner as a "drug" capable of improving the health conditions of patients through the utilisation of empathic communication skills. Particularly, it has been proposed that the various aspects of patient centredness could influence patients' satisfaction and subsequently improving their health outcomes by fostering, for example, adherence to treatments [6].

1.1 Literature overview

Stewart et al. [7], conducted an observational cohort study in Canada on 39 physicians and 315 patients. Consultations were videotaped and patients were asked about their perceptions related to patient centredness through a questionnaire. According to their findings "positive perceptions were associated with better recovery from their discomfort and concern, better emotional health two months later, and fewer diagnostic tests and referrals" (p.1). Another observational study conducted in the UK by Little et al. [8] on 865 patients demonstrated that five main components related to patient centredness (communication and partnership, health promotion, positive approach, and interest in effect on patient's life) were positively associated to greater patients' satisfaction, enablement, and reduction of symptom burden at one month. Plewnia, Bengel, and Korner (9), have examined recently the impact of patient centredness on the satisfaction and treatment outcomes of 1033 patients from nine different medical rehabilitations centres in Germany. Their regression model illustrated that shared decision making/communication and empowerment strongly predicted patients' satisfaction and treatment outcomes. Beach, Keruly, and Moore [10], conducted a study in the USA to examine the association between the perception of patient centredness of individuals affected by HIV, adherence to antiretroviral therapy (HAART), and health outcomes. Their cross-sectional analysis, conducted on 1700 individuals, showed that patients who perceived their healthcare providers to 'know them as a person'

were more likely to adhere to HAART, to be less affected by social stresses, and to utilise less illicit drugs [10]. Kinmonth et al. [11], conducted a randomised controlled trial to compare the effects of patient centred care against usual care on 360 patients affected by type 2 diabetes. Their study showed that patients in the intervention group reported better satisfaction and physical well-being compared to patients in the control group. Thus, these research studies revealed a significant relationship between dimensions of patient centredness adopted in healthcare and health outcomes of patients affected by different diseases.

Despite the importance of the inclusion of patient centredness in medical consultations, there are few scientific studies investigating the consultation styles adopted by healthcare practitioners cross-culturally [12,13]. Additionally, there is a lack of cross-country research investigating the outcomes of the doctor-patient relationship for the youth population. Investigating the outcomes of the doctor-young patient relationship is of fundamental importance as it could help to improve the health and well-being of young individuals in the longer term [14]. While several studies found healthcare expenses and length of consultation to have an impact on young patients' satisfaction [15,16], few studies have investigated how patient centredness relevant for the well-being of young patients, might be associated with how health care professionals communicate with adolescents and young adults during medical encounters. For example, Sacks and Westwood [17], underlined the importance of obtaining information related to the psychosocial context of Canadian adolescents, while Freed, Ellen, Irwin, and Millstein [18] conducted a study to examine the determinants of adolescents' satisfaction with their healthcare providers. Their multiple regression model showed that providers' behaviour predicted satisfaction and that satisfaction was associated with the young person's adherence to follow-up appointments. Despite the importance of the findings, this study was limited. First, all participants were recruited from a single primary care facility in the USA, constraining generalisability. Furthermore, the study underlined only the importance of the way in which healthcare professionals conveyed information to adolescents and young adults.

1.2 AIMS

The literature above underlined a lack of cross-cultural investigation into the level of patient centredness in medical consultations, and its relationship with young patients' satisfaction.

Therefore, the primary aim was to investigate perceived dimensions of patient centred care and their link with adolescents' and young adults' satisfaction in five different countries (UK, USA, China, Italy and Australia). These countries were selected because of their differences in healthcare structures, availability of economic resources, healthcare expenditure, healthcare performance, responsiveness, and health attainment, [20]. It was hypothesised that young patients' satisfaction would be predicted by patient centredness adopted by healthcare practitioners during consultations (H1).

2. METHODS

2.1 Participants

Participants for this study were young people (age range spanning from 18 to 25 years old), from the five different countries. The age classification was based on the WHO age group guidelines [21]. A statistical power analysis was performed *a priori* utilising G*Power software to determine the adequate sample size for ANOVA. With $\alpha = 0.05$, Power = 0.95, effect size (F^2) = 0.15, and five groups, the estimated total sample size for ANOVA was $N=835$.

In order to recruit at least 835 respondents fitting the inclusion criteria, an internet software service of distributing surveys worldwide named 'Survey Monkey' was contracted. A request for 1000 participants (200 per country) was made. These participants, recruited through convenience sampling, were part of Survey Monkey's global respondents' panel, that consists of over 30 million volunteer respondents worldwide. The survey was sent to approximately 250 panelists from each country in order to get the requested 200 respondents at 70-100% incidence rate. Participants were not paid to take the surveys. Instead, Survey Monkey donated 0.50 USD to a charity of respondents' choice upon the completion of the questionnaires.

2.2 Measures

The measurement tool consisted of a self-report questionnaire of 27 items (see supplementary online material) based on three standardised and validated tools: The 'Adolescent-Client Exit Interview Tool' [22], the 'Patient-Doctor Relationship Questionnaire' (PDRQ-9) [23], and the 'Patient-Centred Medical Home Survey' (PCMH) [24]. The first section of the questionnaire (items 1 to 8) asked participants about their socio-demographic characteristics, the frequency of contact with their healthcare providers, and the costs of their healthcare. The following sections asked participants to rate through a 5 point ordinal Likert scale (from strongly disagree to strongly agree) the perceived dimensions of patient centredness employed by their health care providers during medical consultations. We identified sets of items that were grouped in the original tools listed above and categorized them as follows: Psychosocial Context (items 9 to 15), Shared Decision Making (items 16 to 18), and Information (items 19 to 23). Subsequently, participants were asked to rate their satisfaction with the information and the advice provided by their healthcare providers during consultations (items 24 and 25), and with the overall care received (item 26). Lastly, participants were asked to explain through an open-ended question what their providers could improve to increase their satisfaction (item 27). Responses to the open-ended questions were typed in by participants and analysed through Content Analysis [25].

2.3 Procedure

Following Ethical approval, the English version of questionnaire was sent to 'Smartling', an online professional translation service contracted to translate the questionnaires for the Chinese and Italian samples. Thereafter, the English, Chinese, and Italian versions of the questionnaire were sent to the internet platform 'Survey Monkey'. Subsequently, Survey Monkey distributed the link of the questionnaire via email to individuals from its global respondents' panel fitting the inclusion criteria. Possible participants had to read and agree with an informed consent form prior to answering the items of the questionnaire. After agreeing with the informed consent, participants completed the questionnaire (a procedure taking approximately 10-15 minutes) and read a debriefing form on completion. Data from respondents were collected in two tranches in order to determine successful completion rate in the first phase prior to recruiting an extended sample in phase

two. The initial collection consisted of approximately 50 respondents per country (N=253) to develop the measurement tool for this investigation. A second expanded sample that consisted of approximately 160 respondents per country (N=854) in order to confirm the measurement structure. All respondent data were initially stored in the online database of Survey Monkey. Thereafter, the data were downloaded into SPSS (Version 24 for Windows™) for analysis. The factor analysis and multi-level hierarchical linear regression was performed using STATA15™.

2.4 Statistical Methods

A two-stage approach was adopted to investigate the measurement properties of the questionnaire ratings obtained. First, a Principal Factor Analysis (PFA) was conducted on an initial sample (N = 253) comprising of approximately 50 respondents per country to ascertain the dimensionality of the attained items. The components identified were then subjected to confirmatory factor analysis (CFA) using the remaining participants to assess fit to this initial measurement structure. This facilitated the identification and relevance of items to the cross-cultural 'Satisfaction with Care' measure for young patients. Subsequently, one-way ANOVAs were conducted to identify statistically significant differences between the mean scores of country samples on the dimensions identified by the PFA. Lastly, a hierarchical multi-level linear regression model was fitted to assess the extent to which independent measures developed from the questionnaire predicted 'Satisfaction with Care' following the entry of demographic and clinical service utilization variables (Level 1). Country was included as Level 2 variable. Apart from the attained construct(s) all independent variables were specified in categorical format. A robust standard error estimator was employed using the maximum likelihood procedure '*xtmixed*' in STATA15.

2.5 Qualitative Methods

Open ended answers were content analysed using a 'conventional' approach [25]. Particularly, the main themes summarized in Table 4 were developed inductively during the analysis of data that consisted in four main stages. These consisted of: 'observation' of the data by reading the text of the answers, 'identification of coding units' by reading again the text and highlighting words associated to possible themes, and 'data analysis' by applying the previously identified coding units in order to determine the frequency of themes in each country sample.

3. RESULTS

3.1 Descriptive statistics

In total, 1107 participants were recruited: 220 from UK, 230 from USA, 216 from Australia, 226 from China, and 211 from Italy. Participants who did not complete the majority of the survey were excluded (n=73). Thus, the final sample consisted of 1034 participants. The mean age of participants by country and gender is depicted in Table 1. No significant association between 'Gender' and 'Country' variables was found ($\chi^2(8) = 9.66, p=0.29$).

3.2 PFA

Preliminary correlational and factor analyses were performed on all the attitudinal items with the phase 1 preliminary data (n=253) to streamline identification of key constructs and remove redundant items. Of the eight items retained, two factors (PF1, PF2) were revealed after PFA. Both factors were found to have higher eigenvalues than those derived from the average of 100 replication samples of randomly selected scores from the raw data using Horn's parallel procedure '*fapara*' routine in STATA15 (Fig. 1). The CFA on the additional sample of participants showed a close consistency to the exploratory factor analysis results above. The loadings of both factors are presented in Table 2. We relaxed the constraint of independent residual errors on two items: 13 and 14. They used similar wording so we have acknowledged this by allowing the errors from these two items to correlate. The fit indices for the measurement model were: CFI = 0.99, RMSEA = 0.06 (95%CIs 0.05, 0.08) which is very satisfactory [26]. Cronbach's alphas for the two scales PF1 and PF2, were 0.88 and 0.81 respectively, demonstrating good reliability. The initial content analysis of free responses with the phase 1 participants provided supporting evidence for the validity of the two scales.

3.3 One-way Anova

Two one-way ANOVAs were conducted to identify differences between mean scores of country samples on the two components (PF1 and PF2). Levene's test was found to be statistically significant for PF1 ($p < 0.001$), indicating heterogeneity of group variances. Thus, a Welch's Robust Test was conducted, revealing a statistically significant association between Countries' mean scores on PF1 [$F(4,501.914) = 2.491$, $p < 0.05$]. Dunnett C post hoc analysis showed that the mean score of Chinese participants on PF1 was -0.99 (95%CI, -1.91 to -0.80) lower than Australian participants. Adjusted mean scores of countries on PF1 are depicted in Fig.2. Levene's test was found to be statistically non-significant for PF2, indicating reasonable homogeneity of group variances ($p = 0.19$). A statistically significant difference was found between Countries' mean scores on PF2 [$F(4,1025) = 7.931$, $p < 0.001$]. Specifically, the mean score of Italian participants on PC2 was -1.24 (95%CI, -1.99 to -0.48) lower than Australian participants, -0.88 (95%CI, -1.66 to -0.10) lower than UK participants, and -1.29 (95%CI, -2.08 to -0.51) lower than USA participants. The mean score of Chinese participants on PF2 was -0.81 (95%CI, -1.52 to -0.09) lower than Australian participants, and -0.86 (95%CI, -1.61 to -0.11) lower than USA participants according to Dunnett C post hoc analysis. Adjusted mean scores of countries on PF2 are presented in Fig.3.

3.4 Hierarchical Multilevel Linear Regression

A multilevel linear regression procedure was employed to model the dependent variable PF1. Individual participants were defined within Level 1. Level 2 controlled for variance within countries. Independent variables were specified as categories to reveal effects not encumbered by issues of measurement scale. A simple model (Model 1) including demographic variables (gender, education and age) was entered initially. Model 2 incorporated self-reported number of visits and duration of contact with the health provider. Finally Model 3 was fitted with the inclusion of PF2 (Psychosocial Context). The summary results are displayed in Table 3 showing the unstandardized coefficients, robust standard errors, and 95%CIs for Models 1 to 3. Likelihood ratio tests were conducted to show improvement in fit with each nested model. Each model gave highly significant improved fit over the previous model. Model 3 showed strong positive effects of health context, length of duration of service utilization (notably 5 years or more) and frequency of utilization. Female participants were somewhat more positive than males ($p = 0.02$).

3.5 Content analysis

Overall, 75% of participants answered the open-ended question (item 27). The responses tended to be brief and enabled a single code to be assigned. The percentages of answers per country sample were the following: China 82%, USA 70.7%, Australia 74.7%, Italy 75.7%, and UK 70.6%. Major themes were identified from the content analysis for each country (Table 4).

4. DISCUSSION AND CONCLUSION

4.1 Discussion

The current study identified the dimension of 'Psychosocial Context' to predict significantly the 'Satisfaction with Care' of adolescents and young adults, confirming the main hypothesis (H1). Additionally, results revealed significant differences related to perceived dimensions of patient centredness between adolescents and young adults from different countries: Participants from China were found to be significantly less satisfied with the care delivered by their providers compared to young people from Australia, while Italian participants were found to score significantly less on the dimension of 'Psychosocial Context' compared to young people from USA, UK, and Australia. Chinese participants were also found to score significantly less than USA and Australian participants on the dimension of 'Psychosocial Context'. Content Analysis revealed that the opinions of these young people from five different country samples differed in relation to how the respective healthcare providers were rated in satisfaction with care received by the survey respondents.

The 'Psychosocial Context' and the 'Satisfaction with Care' dimensions identified by the current research are in line with previous frameworks and models of patient centredness [27, 28]. Particularly, the assessment of the Psychosocial Context of adolescents and young adults during medical consultations has been considered of fundamental importance for the delivery of patient centred care. Sacks and Westwood [17], explained that by assessing the Psychosocial Context of youths during consultations it is possible to "uncover areas of concern or distress, and to allow for the clinician to identify protective factors and support systems that may be used to foster resiliency and health-promoting practices" (p.556). Furthermore, by

assessing appropriately the psychological and social environment of adolescents and young adults it may be possible to identify risk factors that could foster mental health problems and/or drug abuse in late adulthood. In addition, it may be possible to identify psychological and social factors influencing health-risk behaviors such as smoking and alcohol consumption [29,30,31,32]. Several studies revealed that the assessment of psychological and social issues during medical consultations is related to positive experience, disclosure, and engagement with care of adolescents and young adults [33,34,35], supporting the current results. Furthermore, the present findings are consistent with a review conducted by Ambresin et al. [36] with the aim “to extract the major constructs underlying young people's experiences of health care and to identify domains and indicators of youth friendliness from their perspective”(p.671). The four major constructs identified consisted in ‘satisfaction with health-care’, ‘patient centred care’, ‘experience of care’ and ‘quality of care’, while domains and indicators of youth friendliness included ‘communication’ (clarity and provision of information, active listening, tone of communication), ‘staff attitude’ (respectful, supportive, honest, trustworthy, friendly), ‘medical competency’ (technical skills, procedures), ‘age appropriate environment’ (flexibility of appointment times, teen-oriented health information, waiting time, continuity of care, privacy) and ‘involvement in healthcare’. These constructs and domains are in accordance with factors identified by the PFA (Satisfaction with Care and Psychosocial Context) and with the main themes identified by the content analysis (see Table 4). It should be underlined that Ambresin’s review was conducted with the intent to extract constructs relating to young people’s experiences with healthcare in general, and to employ measures not necessarily focusing on dimensions of patient centred care [27, 28]. In fact, Ambresin et al.[36] identified constructs such as ‘experience with care’ and ‘quality of care’ that included domains not related to dimensions of patient centredness such as 'cleanliness of consultation room' 'waiting time', 'environment', 'treatment', 'pain management', and 'technical skills'. In contrast, the current study focused specifically on patient centred care as the questionnaire was created incorporating measurement items related to specific dimensions of patient centredness [22,23,24] except for item 27 that consisted in an open-ended question investigating participants’ opinions about how the respective healthcare providers could increase their satisfaction. Therefore, through the current study it was

possible to identify a specific dimension namely 'Psychosocial Context' as a strong predictor of satisfaction for young people at an international level.

Interestingly, it was possible to identify significant differences between five country samples. For example, participants from the Chinese sample were found to be significantly less satisfied with the care received compared to Australian participants and to score significantly less on the dimension of 'Psychosocial Context' compared with participants from Australia and USA. In order to interpret this finding we consulted the literature and the free responses to provide some attempt to explain these differences. The results support previous studies that addressed the growing problem of dissatisfaction among Chinese patients [37,38,39]. Particularly, by inspecting the main themes identified by the content analysis (see Table 4), it was noted that the majority of Chinese participants expressed the need to receive more information about treatments and medications during consultations (e.g. *"tell more about the frequency of drug use, drug response and cure effect"*, and *"To explain more about a variety of drugs specific treatment"*), to receive more empathy and attention towards their feelings (e.g. *"be more humane, the care for patients should come from the heart"*, and *"more consideration for the patients' feelings"*), and to have their concerns and worries listened to by their healthcare providers (e.g. *"listen to my doubts and worries"*, and *"Listen more to your concerns and worry.."*). These themes may underline current pitfalls in the doctor-patient relationship within the Chinese healthcare system. Particularly, while the perceived lack of information about treatments, alongside the insufficient listening to patients' concerns, may be related to time-constrained consultations determined by the excessive number of patients that Chinese doctors consult with daily [40], the participants' perceived lack of empathy may be related to different factors, such as poor health communication training for medical students [41,42], and/or to the unsatisfactory working conditions for Chinese healthcare practitioners [43].

The significant difference between the Chinese and Australian samples related to dimensions of 'Satisfaction with Care' and 'Psychosocial Context' may be also related to the high quality of the Australian healthcare system, that is rated by the WHO as one of the best healthcare systems in the world [20]. Furthermore, Australia is one the countries that over the last decade has invested more in developing youth-friendly health services following the respective WHO framework [44,45]. By looking at the themes identified by

the content analysis (see Table 4), it should be noted that the highest percentage of Australian participants expressed their satisfaction with the care received, indicating the limited need for the respective healthcare providers to improve particular communication skills (e.g. *“I am satisfied with my healthcare provider, “My health care provider is fantastic. He listens and I wouldn’t want to go anywhere else”, and “I am happy with my healthcare provider and as such, they do not need to improve anything in my opinion”*).

Italian participants were found to score significantly less on the ‘Psychosocial Context’ dimension compared to participants from Australia, UK, and USA. This finding may be partially supported by Lamiani et al. [46], that examined the differences related to patient centred care between American and Italian healthcare professionals, finding Italian doctors to employ a more implicit paternalistic approach during consultations compared to American healthcare practitioners. This is consistent with the themes identified by the content analysis (see Table 4), that underlined the need for the highest percentage of Italian participants to have their concerns and doubts listened to through during medical consultations (e.g. *“..should make me talk more, let me expose my thoughts, doubts and questions by listening without having to say <I’m the doctor, I know what I do>”, “To listen more to the doubts and perplexities of the patient”, and “Listen to more my doubts and concerns”*).

4.2 Limitations

The current research study presents several important limitations. First, the convenient sampling procedure utilized to recruit the participants through the software ‘Survey Monkey’ may have been subject to bias, as the recruited samples cannot be fully representative. This is the first study of its type that has attempted to compare individuals’ beliefs about patient centredness from more than four countries. To have found differences, admittedly with relatively small effect sizes, is, we believe worthy of attention. A second limitation is that the professional translators of third party sources were utilized to translate the questionnaire and responses to the related open-ended questions for the Chinese and Italian samples. These may have introduced some systematic errors, even though the translation of the questionnaire and free-responses was rated of good quality by two independent ‘mother-tongue’ reviewers. Thirdly, despite being based on standardized and validated tools [22,23,24], the satisfaction with care and psychological context measures revealed by the PFA are

preliminary and require further validation.

4.3 CONCLUSION

The findings of the current research revealed significant differences in the healthcare provider young-patient relationship across healthcare systems, underlining pitfalls in the communication process between healthcare professionals and young people from various countries from four continents. Additionally, the current research revealed how the dimension of 'Psychosocial Context' is relevant in predicting the satisfaction with care of young people at an international level. Healthcare systems should take in consideration these findings in order to facilitate the development of appropriate policies aiming at improving communication and the overall relationship between healthcare providers and young people. This would be of fundamental importance considering the link between dimensions of patient centered care, satisfaction, and health outcomes.

4.4 Practice Implications

Considering the strong link between the dimension of 'Psychosocial Context' and 'Satisfaction with Care', healthcare providers should assess in greater depth the psychological and social factors of adolescents and young adults during medical consultations. Furthermore, by looking at the main themes identified by the content analysis, it emerges a need for healthcare providers to improve their communication skills, with particular reference to active listening, empathy, and provision of information.

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References

- [1] Balint E. The possibilities of patient-centered medicine. *JR Coll Gen Pract.* 1969;17(82):269-76. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2236836/>
- [2] Pelzang R. Time to learn: understanding patient-centred care. *British journal of nursing.* 2010;19(14). <https://doi.org/10.12968/bjon.2010.19.14.49050>
- [3] Laine C, Davidoff F. Patient-centered medicine: a professional evolution. *Jama.* 1996;275(2):152-6. <https://doi.org/10.1001/jama.1996.03530260066035>
- [4] Bensing, J.M., & Verhaak, P.F.M. Communication in medical encounters. in: A.A. Kaptein, J. Weinman (Eds.) *Health psychology.* Oxford, United Kingdom: Blackwell Publishing. 2004. p. 261–287.
- [5] Balint M. The doctor, his patient, and the illness. *The Lancet.* 1955;265(6866):683-8. [https://doi.org/10.1016/S0140-6736\(55\)91061-8](https://doi.org/10.1016/S0140-6736(55)91061-8)
- [6] Epstein RM, Street RL. The values and value of patient-centered care. *Annals Family Med;* 2011. <https://doi.org/10.1370/afm.1239>
- [7] Stewart M, Brown JB, Donner A, McWhinney IR, Oates J, Weston WW, Jordan J. The impact of patient-centered care on outcomes. *Fam Pract.* 2000;49:796-804. <https://www.ncbi.nlm.nih.gov/pubmed/11032203>
- [8] Little P, Everitt H, Williamson I, Warner G, Moore M, Gould C, et al. Observational study of effect of patient centredness and positive approach on outcomes of general practice consultations. *Bmj.* 2001;323(7318):908-11. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC58543/>
- [9] Plewnia A, Bengel J, Körner M. Patient-centeredness and its impact on patient satisfaction and treatment outcomes in medical rehabilitation. *Patient education and counseling.* 2016;99(12):2063-70. <https://dx.doi.org/10.1016/j.pec.2016.07.018>
- [10] Beach MC, Keruly J, Moore RD. Is the Quality of the Patient-Provider Relationship Associated with Better Adherence and Health Outcomes for Patients with HIV? *Journal of general internal medicine.* 2006;21(6):661-5. <https://doi.org/10.1111/j.1525-1497.2006.00399.x>
- [11] Kinmonth AL, Woodcock A, Griffin S, Spiegel N, Campbell MJ. Randomised controlled trial of patient centred care of diabetes in general practice: impact on current wellbeing and future disease risk. *Bmj.* 1998;317(7167):1202-8. <https://www.ncbi.nlm.nih.gov/pubmed/9794859>
- [12] Ohtaki S, Ohtaki T, Fetters MD. Doctor–patient communication: a comparison of the USA and Japan. *Family Practice.* 2003;20(3):276-82

<https://www.ncbi.nlm.nih.gov/pubmed/12738696>.

[13] Claramita M, Nugraheni MD, van Dalen J, van der Vleuten C. Doctor–patient communication in Southeast Asia: a different culture? *Advances in Health Sciences Education*. 2013;18(1):15-31. <https://DOI:10.1007/s10459-012-9352-5>

[14] Viner RM, Barker M. Young people's health: the need for action. *BMJ : British Medical Journal*. 2005;330(7496):901-3. <https://doi.org/10.1136/bmj.330.7496.901>

[15] Donahue KE, Ashkin E, Pathman DE. Length of patient-physician relationship and patients' satisfaction and preventive service use in the rural south: a cross-sectional telephone study. *BMC family practice*. 2005;6(1):40. <https://doi.org/10.1186/1471-2296-6-40>

[16] Fenton JJ, Jerant AF, Bertakis KD, Franks P. The cost of satisfaction: a national study of patient satisfaction, health care utilization, expenditures, and mortality. *Archives of internal medicine*. 2012;172(5):405-11. doi: 10.1001/archinternmed.2011.1662.

[17] Sacks D, Westwood M. An approach to interviewing adolescents. *Paediatrics & child health*. 2003;8(9):554-6. <https://doi.org/10.1093/pch/8.9.554>

[18] Freed LH, Ellen JM, Irwin CE, Millstein SG. Determinants of adolescents' satisfaction with health care providers and intentions to keep follow-up appointments. *Journal of Adolescent Health*. 1998;22(6):475-9. [https://doi.org/10.1016/S1054-139X\(98\)00002-0](https://doi.org/10.1016/S1054-139X(98)00002-0)

[19] World Health Organisation. *Global Standards For Quality Health-Care Services for Adolescents Volume 1* [Internet]. Geneva: World Health Organisation;2015. Retrieved from http://apps.who.int/iris/bitstream/10665/183935/1/9789241549332_vol1_eng.pdf

[20] World Health Organisation. *The World Health Report* [Internet]. Geneva: World Health Organisation; 2000. Retrieved from http://www.who.int/whr/2000/en/whr00_en.pdf?ua=1

[21] World Health Organisation. *Definition of Key Terms* [Internet]. Geneva: World Health Organisation; 2013. Retrieved from <http://www.who.int/hiv/pub/guidelines/arv2013/intro/keyterms/en/>

[22] World Health Organisation. *Global Standards for Quality Health-Care Services for Adolescents Volume 3* [Internet]. Geneva: World Health Organisation; 2015. Retrieved from http://apps.who.int/iris/bitstream/10665/183935/5/9789241549332_vol3_eng.pdf

f?ua=1

- [23] Van der Feltz-Cornelis CM, Van Oppen P, Van Marwijk HW, De Beurs E, Van Dyck R. A patient-doctor relationship questionnaire (PDRQ-9) in primary care: development and psychometric evaluation. *General hospital psychiatry*. 2004;26(2):115-20. <https://doi.org/10.1016/j.genhosppsych.2003.08.010>
- [24] Agency for Health Research and Quality. Patient-Centred Medical Home Survey [Internet]. U.S.: Agency for Health Research and Quality; 2016. Retrieved from <https://www.ahrq.gov/cahps/surveys-guidance/cg/instructions/downloadpcmh.html>
- [25] Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. *Qualitative health research*. 2005;15(9):1277-88. <http://journals.sagepub.com/doi/abs/10.1177/1049732305276687>
- [26] Hu, L. T., & Bentler, P. M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*. 1999;6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- [27] Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. *Social science & medicine*. 2000;51(7):1087-110. [https://doi.org/10.1016/S0277-9536\(00\)00098-8](https://doi.org/10.1016/S0277-9536(00)00098-8)
- [28] Stewart M. Towards a global definition of patient centred care: the patient should be the judge of patient centred care. *BMJ: British Medical Journal*. 2001;322(7284):444. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1119673/>
- [29] Gopiram, P., & Kishore, M. T. Psychosocial attributes of substance abuse among adolescents and young adults: A comparative study of users and non-users. *Indian journal of psychological medicine*. 2014;36(1), 58. <https://dx.doi.org/10.4103%2F0253-7176.127252>
- [30] Boys A, Marsden J, Strang J. Understanding reasons for drug use amongst young people: A functional perspective. *Health Educ Res*. 2001;16:457–69. <https://www.ncbi.nlm.nih.gov/pubmed/11525392>
- [31] Wills TA, Sandy JM, Yaeger AM, Cleary SD, Shinar O. Coping dimensions, life stress, and adolescent substance use: A latent growth analysis. *J AbnormPsychol*. 2001;110:309–23. <https://www.ncbi.nlm.nih.gov/pubmed/11358025>
- [32] Barrett AE, Turner RJ. Family structure and substance use problems in adolescence and early adulthood: Examining explanations for the relationship. *Addiction*. 2006;101:109–20. <https://www.ncbi.nlm.nih.gov/pubmed/16393197>
- [33] Bradford, S., & Rickwood, D.. Psychosocial assessments for young

people: a systematic review examining acceptability, disclosure and engagement, and predictive utility. *Adolescent health, medicine and therapeutics*. 2012;3, 111.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3915791/>

[34] Webb, M. J., Wadley, G., & Sancu, L. A. Improving patient-centered care for young people in general practice with a codesigned screening app: mixed methods study. *JMIR mHealth and uHealth*. 2017;5(8).

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5573432/>

[35] Toomey, S. L., Elliott, M. N., Schwebel, D. C., Tortolero, S. R., Cuccaro, P. M., Davies, S. L., ... & Schuster, M. A. (2016). Relationship between adolescent report of patient-centered care and of quality of primary care. *Academic pediatrics*. 2016;16(8), 770-776.

<https://doi.org/10.1016/j.acap.2016.01.006>

[36] Ambresin, A. E., Bennett, K., Patton, G. C., Sancu, L. A., & Sawyer, S. M. Assessment of youth-friendly health care: a systematic review of indicators drawn from young people's perspectives. *Journal of Adolescent Health*. 2013;52(6), 670-681. <https://doi.org/10.1016/j.jadohealth.2012.12.014>

[37] Pan Y, hong Yang X, He JP, Gu YH, Zhan XL, Gu HF, et al. To be or not to be a doctor, that is the question: a review of serious incidents of violence against doctors in China from 2003–2013. *Journal of Public Health*. 2015;23(2):111-6. <https://link.springer.com/article/10.1007/s10389-015-0658>

[38] Sun S, Wang W. Violence against Chinese health-care workers. *The lancet*. 2011;377(9779):1747. [http://dx.doi.org/10.1016/S0140-6736\(11\)60733-2](http://dx.doi.org/10.1016/S0140-6736(11)60733-2)

[39] Yao S, Zeng Q, Peng M, Ren S, Chen G, Wang J. Stop violence against medical workers in China. *Journal of thoracic disease*. 2014;6(6):E141. <https://doi:10.3978/j.issn.2072-1439.2014.06.10>

[40] Xu W. Violence against doctors in China. *The Lancet*. 2014;384(9945):745. [http://dx.doi.org/10.1016/S0140-6736\(14\)61438-0](http://dx.doi.org/10.1016/S0140-6736(14)61438-0)

[41] Tucker JD, Cheng Y, Wong B, Gong N, Nie J-B, Zhu W, et al. Patient–physician mistrust and violence against physicians in Guangdong Province, China: a qualitative study. *BMJ open*. 2015;5(10):e008221. <http://dx.doi.org/10.1136/bmjopen-2015-008221>

[42] Wen D, Ma X, Li H, Liu Z, Xian B, Liu Y. Empathy in Chinese medical students: psychometric characteristics and differences by gender and year of medical education. *BMC medical education*. 2013;13(1):130. <https://doi.org/10.1186/1472-6920-13-130>

[43] Chen Q, Yang L, Feng Q, Tighe SS. Job Satisfaction Analysis in Rural

China: A Qualitative Study of Doctors in a Township Hospital. Scientifica. 2017;2017. <https://doi.org/10.1155/2017/196408>

[44] Tylee, A., Haller, D. M., Graham, T., Churchill, R., & Sanci, L. A. Youth-friendly primary-care services: how are we doing and what more needs to be done?. The Lancet. 2007;369(9572), 1565-1573.

[https://doi.org/10.1016/S0140-6736\(07\)60371-7](https://doi.org/10.1016/S0140-6736(07)60371-7)

[45] World Health Organisation. Adolescent friendly health services: an agenda for change[internet].Geneva: World health Organisation: 2002. Retrieved from

http://apps.who.int/iris/bitstream/handle/10665/67923/WHO_FCH_CAH_02.14.p?sequence=1

[46] Lamiani G, Meyer EC, Rider EA, Browning DM, Vegni E, Mauri E, et al. Assumptions and blind spots in patient-centredness: action research between American and Italian health care professionals. Medical Education 2008;42(7):712-20. [https://doi: 10.1111/j.1365-2923.2008](https://doi:10.1111/j.1365-2923.2008)

