How Do Patients and Physicians Perceive Immune Thrombocytopenia (ITP) As a Disease? Results From Indian Analysis of ITP World Impact Survey (I-WiSh)

Prantar Chakrabarti
Vivekananda Institute of Medical Sciences

Biju George
CMC Vellore: Christian Medical College Vellore

Chandrakala Shanmukhaiah
KEM Hospital and Seth G S Medical College: King Edward Memorial Hospital and Seth Gordhandas Sunderdas Medical College

Lalit Mohan Sharma
MG Medical College

Shashank Udupi
Novartis Healthcare Pvt Ltd

Waleed Ghanima (wghanima@gmail.com)
Ostfold Hospital: Sykehuset Ostfold HF https://orcid.org/0000-0003-2225-6165

Research

Keywords: Disease management, health-related quality of life (HRQoL), immune thrombocytopenia (ITP), India, ITP World Impact Survey (I-WiSh), ITP symptoms

Posted Date: July 26th, 2021

DOI: https://doi.org/10.21203/rs.3.rs-731992/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Version of Record: A version of this preprint was published at Journal of Patient-Reported Outcomes on March 18th, 2022. See the published version at https://doi.org/10.1186/s41687-022-00429-y.
Abstract

**Background:** Immune thrombocytopenia (ITP) is primarily considered a bleeding disorder; its impact on patients’ health-related quality of life (HRQoL) is under-recognized. We aimed to assess how aligned patient and physician perceptions are regarding ITP-associated symptoms, HRQoL, and disease management in India.

**Methods:** Patients and physicians (hematologists/hemato-oncologists) from India who participated in the global ITP World Impact Survey (I-WISH) were included in this subgroup analysis (survey).

**Results:** A total of 65 patients and 21 physicians were included in this study. Average disease duration from diagnosis-to-survey-completion was 5.3 years. The most severe symptoms reported by patients at diagnosis were menorrhagia (15/19;79%), anxiety surrounding unstable platelet counts (17/28;61%), and fatigue (27/46;59%); these were also the key symptoms they wanted to be resolved. In contrast, physicians perceived petechiae (19/21;90%), bleeding-from-gums [(8/21;86%), and purpura (16/21;76%) as the most common symptoms. While the important treatment goals for patients were healthy blood counts (42/65;65%), improved QoL (35/65;54%), and prevention of worsening of ITP (33/65;51%), physicians’ goals were reduction in spontaneous bleeding (17/21;81%), better QoL (14/21;67%), and symptom improvement (9/21;43%). More than half the patients reported that ITP affected their work life/studies, social life, and energy levels, thereby negatively impacting their QoL. Patients were almost entirely dependent on family and friends for support.

**Conclusions:** This survey highlights the substantial discrepancy in patients’ and physicians’ perceptions regarding ITP-associated symptoms and treatment goals in India. Educating physicians on aspects of ITP beyond bleeding, and highlighting patients’ under-recognized symptoms/needs through support-systems may bring about a meaningful change.

**Background**

Immune thrombocytopenia (ITP) requires lifelong treatment in a substantial proportion of adult patients, thereby negatively impacting the patient quality of life (QoL)\(^1,\)\(^2\). Improvement in health-related QoL (HRQoL) parameters has been identified as an important treatment objective in the updated ITP guidelines (ASH, ICR 2019)\(^3,\)\(^4\). However, in resource-limited countries, such as India, where physicians have a higher patient burden and can afford only limited in-clinic time\(^5-7\), assessment and treatment of HRQoL parameters is challenging. Physicians often tend to underestimate or ignore HRQoL parameters in routine clinical practice, as the major treatment goal for ITP is to treat or prevent bleeding\(^2\).

Recently, the ITP World Impact Survey (I-WISH) was conducted to discern how ITP and associated treatments affect patient lives and to evaluate how aligned patient and physician perceptions are regarding symptoms, HRQoL, and disease management\(^8,\)\(^9\) and we have conducted an analysis of data from the Indian patient subgroup included in the I-WISH study. With ITP being one of the most common
non-infectious causes of thrombocytopenia in India,\textsuperscript{10, 11} the major objectives of this study were to understand the challenges in the diagnostic journey of patients with ITP in India; patient and physician perceptions of disease and symptoms; impact of ITP on patient QoL, daily activities, and work; and existing support systems for ITP and its management.

\textbf{Methods}

\textbf{Survey Participants and Study Conduct}

The I-WISH India-specific analysis is based on data collected as part of I-WISH 1.0, a cross-sectional survey of adult patients (age $\geq 18$ years) with ITP and hematologists or hemato-oncologists who treat patients with ITP. The global I-WISH study was conducted in 13 countries (Canada, China, Colombia, Egypt, France, Germany, India, Italy, Japan, Spain, Turkey, the United Kingdom, and the United States). Patient surveys were sent via mass email to patient support networks and physicians who were requested to disseminate the surveys to patients. Physician surveys were emailed by local fieldwork agencies. The respondents took 30 minutes to complete the questionnaire. Fully deidentified respondent information was collated and aggregated by local fieldwork partners such that the surveys were unlinked and anonymized. Surveys and details of the survey methods, including how patients and physicians were identified, have been outlined in the supplementary material and published previously.\textsuperscript{8, 9}

To understand the level of agreement that the respondents had with a statement in the survey, a Likert scale of 1–7 was used; for assessment of symptoms, a score $\geq 5$ on the Likert scale was considered “severe”. Patients also completed the newly developed ITP Life Quality Index (ILQI) that included 10 questions on the impact of ITP on the following: work or studies, time taken off work or education, ability to concentrate, social life, sex life, energy levels, ability to undertake daily tasks, ability to provide support, hobbies, and capacity to exercise;\textsuperscript{12} additional details can be accessed from the global I-WISH study.\textsuperscript{10}

Survey materials and the study protocol were reviewed and approved by a centralized Institutional Review Board (IRB). Patients and physicians were given an overview of the study and the ethical approval details; those who wished to participate were required to provide consent via a tick/check box before initiation.

\textbf{Statistical Analyses}

Patient and physician survey data were analyzed separately using descriptive statistics. There were no prespecified hypotheses associated with these exploratory surveys, and as such, data was summarized narratively.

\textbf{Results}

\textbf{Demographic Characteristics and the Diagnostic Journey of Patients With ITP}
Overall, 21 physicians and 65 patients completed the survey questionnaire between December 2017 and August 2018. Patients were recruited by either experienced physicians treating ITP (64/65 [98%]) or patient association groups (1/65 [2%]). Accurate estimates on the number of individuals who were approached for participation in the survey could not be obtained. All respondents who participated in the survey questionnaire provided their demographic information, along with details of their diagnostic processes (Table 1).
| Table 1  | Patient/physician demographic characteristics and patient diagnostic pathways |
|---------|---------------------------------------------------------------------------------|
|         | Patients N = 65                                                                   |
| Mean age, years | 33                                                                               |
| Male, n (%)   | 39 (60%)                                                                         |
| Female, n (%) | 26 (40%)                                                                         |
| Current health state | (Score: 1, very poor health; 7, excellent health)                             |
| ≤ 4          | 26 (40%)                                                                         |
| Splenectomized, n (%) | 6/64 (9.3%)                        |
| Diagnosis |                                                                                   |
| Median (IQR) time from symptom presentation to diagnosis, months | 1.5(0.5–5.7)                   |
| Symptom presentation to first consultation, months | 0.7 (0.1-3.0)                  |
| First consultation to diagnosis | 0.5 (0.2-1.0)                   |
| Patients with a median time from initial presentation to ITP diagnosis > 6 months, n (%) | 9/55 (16%)                      |
| Patients in whom diagnosis of ITP confirmed as a result of another health condition, n (%) | 2 (3%)                          |
| Delay in diagnosis, n (%) | 21 (32%)                                                                         |
| Awaiting additional test results | 8 (38%)                        |
| Specialist reference | 7 (33%)                           |
| Patient support following diagnosis, n (%) |                                                                                   |
| Family/friends | 59 (91%)                                                                         |
| Physicians    | 50 (77%)                                                                         |
| Nurses        | 24 (37%)                                                                         |
| Patients who needed more support during the diagnosis process, n (%) | 27 (42%)                       |
| Physicians    | 20 (74%)                                                                         |
| Family/friends | 13 (48%)                                                                         |
| Patient support groups | 11 (41%)                          |
| Patients N = 65                                      | Physicians N = 21                        |
|----------------------------------------------------|----------------------------------------|
| **Average total patient caseload**                 | 625                                    |
| **Number of ITP patients seen in the last 12 months** | 81                                     |
| **Practice setting**                               |                                        |
| Private care                                       | 12 (57%)                               |
| Specialty cancer center                            | 5 (24%)                                |
| University teaching hospital and community teaching hospital | 4 (19%)                                |
| **Year of qualification**                          |                                        |
| Before 1981                                        | 1 (5%)                                 |
| 1981–1993                                          | 3 (14%)                                |
| 1994–2003                                          | 5 (24%)                                |
| 2004–2014                                          | 10 (48%)                               |
| After 2014                                         | 2 (10%)                                |
| **Diagnosis**                                      |                                        |
| Median (IQR) time from symptom presentation to diagnosis, months | 0.25 (0.25–0.62)                     |
| Primary ITP                                        | 70%                                    |
| Secondary ITP                                      | 30%                                    |
| **Reasons for delay in diagnosis**                 |                                        |
| Specialist reference                               | 13 (62%)                               |
| Exclusion of other potential causes                | 12 (57%)                               |
| **Causes of secondary ITP**                        |                                        |
| Systemic lupus erythematosus                       | 11 (52%)                               |
| Drug-induced thrombocytopenia                      | 11 (52%)                               |
| Hepatitis C virus                                  | 10 (48%)                               |
| Chronic lymphocytic leukemia                       | 8 (38%)                                |
| Human immunodeficiency virus                       | 7 (33%)                                |
| Investigation rates (asymptomatic vs high symptom burden) | Patients N = 65 |
|-----------------------------------------------------------|----------------|
| **Spleen evaluation**                                    | 12 (57%) vs 16 (76%) |
| **Coomb’s test**                                         | 5 (24%) vs 13 (76%) |
| **H. pylori**                                             | 3 (14%) vs 8 (28%) |
| **Computed tomography scan**                             | 1 (5%) vs 7 (33%) |
| **Platelet specific assay**                              | 0% vs 4 (19%) |

**Misdiagnosis rates**

|                              |                  |
|------------------------------|------------------|
| Upto 25% patients are misdiagnosed | 14 (67%) |
| 26%-50% patients are misdiagnosed      | 5 (24%) |

**Most commonly misdiagnosed conditions**

|                                |                  |
|--------------------------------|------------------|
| Drug induced thrombocytopenia   | 12 (63%) |
| Leukemia                       | 11 (58%) |
| Aplastic anemia                | 10 (53%) |

**Patients**

The mean (standard deviation [SD]) age of the patients was 33 (12.62) years, with 39/65 (60%) patients being male. The symptom burden was moderate to high in 24/57 (42.1%) patients, of whom 17/24 (71%) reported a poor health score (≤ 4 on the Likert scale). Patients met an average of 5 healthcare professionals (HCPs; including primary care physicians, nurses, emergency care doctors, dentists, and others) before an accurate diagnosis of ITP, which was confirmed by physicians specialized in the management of ITP in 56/65 (86%) patients. Overall, 21/65 (32%) patients expressed a delay in ITP diagnosis, thereby leading to severe anxiety (≥ 5 on the Likert scale) in 8/21 (38%) patients.

**Physicians**

All physicians included in the survey were either hematologists (n = 13) or hemato-oncologists (n = 8). More than half of the physicians who participated in the survey (12/21 [57%]) practiced in a private setting. Of the average caseload, about 87/625 (13.9%) were patients with ITP. ITP was rated as a “somewhat less important” condition by 14/21 (67%) physicians. Nearly one-fourth (5/21 [24%]) of the physicians perceived that 26%-50% of patients were misdiagnosed.
Patient and Physician Perception of ITP Symptoms and Severity

Patient perspective

The most commonly reported symptoms at diagnosis were heavy menstrual bleeding (19/26 [73%]), fatigue (46/65 [71%]), petechiae (39/65 [60%]), hematoma (30/65 [46%]), and anxiety surrounding unstable platelet counts (28/65 [43%]). The mean (SD) duration of the disease from diagnosis to survey completion was 5.3 (6.77) years. At survey completion, the most commonly reported symptoms were fatigue (35/65 [54%]), heavy menstrual bleeding (10/26 [38%]), anxiety surrounding unstable platelet counts (23/65 [35%]), petechiae (19/65 [29%]), and hematoma (11/65 [17%]) (Fig. 1A). Menorrhagia (15/19 [79%]), anxiety surrounding unstable platelet counts (17/28 [61%]), and fatigue (27/46 [59%]) were the most commonly reported severe symptoms at diagnosis (considering symptoms reported by at least 15 patients) (Fig. 1A). The key symptoms that patients wanted to be resolved included fatigue (27/65 [42%]), heavy menstrual bleeding (10/26 [38%]), and anxiety surrounding unstable platelet counts (21/65 [32%]) (Supplementary Fig. 1).

Physician perspective

The most common signs and symptoms reported by physicians, based on the inputs received from their patients, were similar at diagnosis vs survey completion; these included petechiae (19/21 [90%] vs 19/21 [90%]), bleeding from gums (18/21 [86%] vs 18/21 [86%]), purpura (16/21 [76%] vs 18/21 [86%]), epistaxis (14/21 [67%] vs 13/21 [62%]), and heavy menstrual bleed (11/21 [52%] vs 12/21 [57%]) (Fig. 1B). According to physicians, hematuria, melena, or rectal bleed (17/21 [81%]); profuse bleeding during surgery (16/21 [76%]); menorrhagia (14/21 [67%]); anxiety surrounding unstable platelet counts (12/21 [57%]); and hematoma (12/21 [57%]) could have a major negative impact on patient HRQoL (scored ≥ 5 on the Likert scale). According to physicians, about 37% patients experienced fatigue, and the severity was considered as low (≤ 4 on the Likert scale) in most patients (17/21 [81%]). Fatigue was considered to be very severe by 12/21 (57%), 10/21 (48%), and 8/21 (38%) physicians when platelet counts were below 10×10^9/L, 30×10^9/L, and 40×10^9/L, respectively (Supplementary Fig. 2). Overall, fatigue was considered as a major concern by only 7/21 (33%) physicians.

Impact of ITP on QoL

Patient

Based on the ILQI scores, the parameters that significantly had a negative impact on patient QoL very often (more than half of the time) were work life/studies (19/50 [38%]), absence of work/education (16/48 [33%]), and energy levels (19/65 [29%]) (Fig. 2A).
The overall impact on emotional well-being was scored $\geq 5$ on the Likert scale by 25/66 (38%) patients, and the top 4 reported reasons with a severe impact were anxiety surrounding unstable platelet counts (38/65 [58%]), importance of stable platelet counts (38/65 [58%]), fluctuation in platelet counts for no apparent reason (34/65 [52%]), and frustration with ITP symptoms (31/64 [48%]) (Supplementary Fig. 3). Overall, 60/65 (92%) patients did not receive any professional support, of whom 20/60 (33%) expressed a desire for additional support.

ITP adversely affected the work and financial situation of patients, with 10/38 (26%) patients reducing their work hours and 9/36 (25%) seriously considering a reduction in their work hours. Patients reported an average of 11.1 hours of missed work per week due to the impact of ITP (Supplementary Fig. 4). The total monthly out-of-pocket expense for a patient with ITP was $211 (~\,16 000 INR), with medicines accounting for more than 60% of this expense ($132 [~\,9 600 INR]). Patients also spent an average of 6.1 hours/month traveling for their appointments.

Overall, 39/65 (60%) patients expressed the need for support (either ‘rarely’, ‘sometimes’, or ‘often’) for an average of 33.7 hours/week; homemaking (27/39 [69%]), transportation (26/39 [67%]), healthcare (25/39 [64%]), and management of finances (20/39 [51%]), were the primary reasons for which support was requested. The key support providers were parents (19/39 [49%]) and spouses (9/39 [23%]).

**Physician**

Physicians felt that anxiety about platelet counts and frustrations around having a long-term, rare disease had a severe adverse impact on most of the patients (~90%). Daily activities were severely impacted in 4/20 (21%) of the patients and 5/20 (25%) of the physicians felt that ITP had negatively impacted patients’ relationship with their spouses. Overall, interference of ITP in the level of patients’ physical activity was reported as severe by 6/20 (30%) of physicians, and 18/20 (90%) physicians felt that ITP greatly impacted patients’ ability to play contact sports or sports with a chance of bleeding injury. A negative impact of ITP on patients’ sex lives (8/18 [44%]) and concerns around increased risk of bleeding impacting travel plans (9/20 [45%]) was reported by 45% physicians.

Almost all physicians (20/21 [95%]) did not use any QoL tool, but expressed their desire to use a patient self-assessment questionnaire (12/20 [60%] would use it during every consultation, and 7/20 [35%] would use it every 6 months). Most physicians (16/21 [76%]) expressed that use of a mobile-based app would help in recording patient QoL, while 10/21 (48%) physicians expressed that combining paper- and mobile app-based approach would be the preferred method to use. No major differences were observed in the response assessments of physicians based on their workload.

**Management of Goals and Treatment Options in ITP**

**Patient**

ITP diagnosis to treatment required an average of 0.9 months, with over half of the patients (34/65 [52%]) undergoing a period of “wait and watch.” The important treatment goals for patients were healthy blood
counts (42/65 [65%]), improvement in QoL (35/65 [54%]), prevention of episodes on worsening of ITP (33/65 [51%]), reduction in spontaneous bleeding (18/65 [28%]), and an overall improvement in symptoms (17/65 [26%]) (Fig. 3A). A majority of patients (41/65 [63%]) strongly agreed that their current treatment was helping them reach their treatment goals.

A once-daily oral pill was preferred by 49/65 (75%) patients. At the time of survey completion, the most frequently administered treatments were corticosteroids (38/65 [58%]), androgens (9/65 [14%]), anti-CD20 (9/65 [14%]), thrombopoietin receptor agonists (TPO-RAs; 8/65 [12%]), and other immunosuppressants (7/65 [11%]); the average duration of these medications was 4.7 months. When the symptom burden was low, most patients reported undergoing treatment with corticosteroids (27/33 [82%]), and as the burden increased to moderate and above, corticosteroid use decreased slightly (17/24 [71%]). The use of androgens (8/33 [24%] to 11/24 [46%]), anti-CD20 (9/33 [27%] to 11/24 [46%]), and TPO-RAs (3/33 [9%] to 7/24 [29%]) increased with increasing symptom burden. Data on treatment satisfaction were based on a low patient number (data not presented here).

Physician

Approximately 39% of the newly diagnosed patients were given a trial of observation only. Even among patients who had been previously treated for > 12 months since diagnosis, 30% were put on observation instead of being treated. Splenectomy was considered in 23% of the patients with chronic and recurrent course. Platelet count monitoring was done more routinely in newly diagnosed patients (every 15 days) compared with patients with chronic ITP (every 1.7 months). The major treatment goals for physicians were reduction in spontaneous bleeding (17/21 [81%]), better QoL (14/21 [67%]), symptom improvement (9/21 [43%]), healthy blood counts (6/21 [29%]), and reduction in fatigue symptom (5/21 [24%]). Nearly 90% of physicians (18/21 [86%]) believed that they discussed and agreed on treatment goals with their patients, and 14/21 (67%) physicians aimed to limit the immunosuppressive effect of the treatment (Fig. 3B).

The most important attributes while making treatment decisions for patients with ITP were offering cure or sustained remission (83%), the ability to reduce bleeding risk (80%), and keeping side effects to a minimum (79%). For both newly diagnosed and chronic ITP, ~ 80% of physicians preferred oral treatment options as the first line of treatment. Corticosteroids (19/21 [90%]) and intravenous immunoglobulins (IVIgs; 16/21 [76%]) were the preferred treatments in newly diagnosed patients with ITP. TPO-RAs (19/21 [90%]) and anti-CD20 (17/21 [81%]), followed by androgens (16/21 [76%]), were the preferred treatment options in patients with persistent and chronic ITP (Fig. 4; Supplementary Fig. 5).

For patients relapsing for the first time, corticosteroids (14/21 [67%]), followed by androgens (8/21 [38%]) and IVIgs/anti-CD20 (7/21 [33%] each), were preferred, while during second relapse other immunosuppressants (9/21 [43%]) followed by corticosteroids (8/21 [38%]) were preferred; by the third relapse, TPO-RAs (11/21 [52%]), followed by anti-CD20 therapy (8/21 [38%]), were the preferred treatment option.
Based on physician perspective, patients treated with TPO-RAs had the least incidence of side effects. A total of 13/21 (62%) physicians agreed that they were satisfied with the current treatment options available. Lack of efficacy (21/21 [100%]), followed by side effects (19/21 [90%]), and cost/coverage (17/21 [81%]), was the most important reason for a change in therapy.

**Patient and Physician Relationship**

When compared with patients, a lower proportion of physicians were completely satisfied with the various aspects of ITP disease–related care and management (data not shown). While responding to questions on access to information on ITP for their patients, 9/21 (43%) physicians expressed that patients faced at least some level of difficulty in accessing information. About half of the physicians indicated that they provided disease management–related information in a leaflet format explaining the contents of the leaflet (9/21 [43%]). From the patient perspective, 40/65 (62%) had not received any information from their HCP. For patients who received information from their HCP, it was either through a leaflet (10/25 [40%]) or through HCPs showing the website content during consultation (8/25 [32%]) or by being directed to the website for accessing information about the disease (7/25 [28%]). A large proportion of patients did not have any contact with patient support groups (61/65 [94%]).

Among 64/65 (98%) patients who visited a specialist doctor, an average of 6.5 visits were recorded in the last 12 months, and of these patients, 49 (77%) perceived the frequency of visits to be adequate. None of the patients reported consultation with a psychologist.

**Discussion**

To the best of our knowledge, this questionnaire-based survey is the first of its kind among patients with ITP and treating physicians in the Indian subcontinent, and provides an insight into the perceptions of both patients and physicians regarding disease diagnosis, signs and symptoms, impact of patient HRQoL, and the approach toward disease management.

A marked difference was observed in the number of patients with ITP seen by physicians in the last 12 months before survey completion between the Indian and global survey data (India: 81, global: 43). In India, the overall doctortopopulation ratio is 1:1800, which is lower than that the ratio of 1:1000 suggested by ‘High Level Expert Group (HLEG) for Universal Health Coverage’ constituted by the Planning Commission, and endorsed by WHO. Moreover, in India, the population-to-specialist ratio is high, which further increases the patient burden of hematologists and hematooncologists. With such a high patient burden and an estimated average primary care physician consultation time of ~ 2 minutes in India, physicians tend to primarily treat for bleeding episodes and often underestimate the impact of ITP on QoL. It is therefore imperative that auxiliary healthcare service providers, especially nurses, are trained to assess HRQoL parameters, and along with physicians, adopt app-based or other validated QoL tools for better disease management.
Heavy menstrual bleeding, fatigue, and anxiety surrounding unstable platelet counts were predominantly reported as severe by patients at both diagnosis and survey completion. Physician perspectives on the frequency and/or severity of the most common symptoms and their impact on QoL were not always similar to those reported by patients. While fatigue was reported as severe by ~ 60% of patients at diagnosis, about 33% of physicians perceived it as a symptom that severely affects patient QoL. This trend in underestimation of fatigue by physicians was observed in both the Indian and global data.\cite{9} However, fatigue adversely impacts patient work productivity and social life, and physicians should consider patient-reported fatigue as an important symptom that affects HRQoL.\cite{14} A high frequency of menorrhagia, iron deficiency anemia, and other nutritional anemias found among Indian patients could be an important contributing factor for fatigue.\cite{15,16,17} Similar to fatigue events, menorrhagia also impacts a number of HRQoL measures\cite{18,19} and was reported by a majority of women (> 70%) in this analysis. The fear concerning heavy menstruation could be a major cause of anxiety in most women at the time of ITP diagnosis (based on low-grade evidence).\cite{20,21} Of note, anxiety was reported by 43% patients at diagnosis and 35% patients at survey completion. Given that anxiety could be associated with repeated blood count testing, more healthcare visits than required, and changing the consulting physician frequently (doctor shopping), it could result in an overall increase in healthcare cost. Therefore, counselling and participatory medicine is important to ensure a common treatment goal for physicians and patients to address anxiety in ITP. Interestingly, the proportion of patients reporting anxiety as a severe symptom reduced from 61–16% from diagnosis to survey completion. This could be partially attributed to the fact that the average disease duration from the time of diagnosis to survey completion was 5.3 years, implying that most patients evaluated in this analysis had chronic ITP. It is often speculated that patients with newly diagnosed ITP have higher anxiety levels due to the uncertainty associated with their disease course.\cite{22}

The assessment and improvement of HRQoL parameters generally require a multidimensional approach and should be tailored for the patient, while taking into account the healthcare system, cultural, and economic backgrounds of individual countries.\cite{23} In this subgroup analysis among patients from India, the ILQI questionnaire scores showed that daily life was severely impacted by ITP, with more than half the patients reporting that their work life, education, concentration levels, social lives, and energy levels were negatively affected. In general, the QoL parameters that were highlighted as being a concern include anxiety about platelet counts and frustrations around having a long-term rare disease, high out-of-pocket expenses, inability to perform intense physical exercise or play sports with chances of bleeding injuries, and impact on travel plans due to concerns about increased risk of bleeding and taking medications abroad. The out-of-pocket expenses account for nearly 63% of the total healthcare expenditure in India—one of the highest in the world—reiterating the importance of a country's healthcare infrastructure in supporting improvement of patients' HRQoL.\cite{23,24,25} Although a few public health insurance programs in India cover nonmedical expenditure, such as transportation, lodging, and food costs, for patients and caregivers, there is no provision for incurring the loss of pay suffered by patients or their spouses,\cite{25} thereby increasing the socioeconomic burden of the disease. The lack of patient support groups and
other professional support for patient counseling add to the emotional burden of ITP in India, as patients almost entirely depend on family, friends, and the treating doctor for support. Patient support groups could not only provide a platform for patients to share their disease experience and provide emotional and moral support but also help educate patients/families, raise public awareness, and aid in raising funds. However, in India, engagement in patient support groups is low. The major constraints in ensuring higher engagement rates could be the lack of awareness, lack of time, or anxiety around discussing the negative aspects of the disease publicly. There is a need to consider a holistic approach toward assessment of symptom burden and impact of ITP on QoL in routine clinical practice in India.

Physician ability to effectively and compassionately communicate the nature of disease and management options is important to build trust in a patient–physician relationship, and shared decisionmaking is a key element in improving patient–physician communication. Although nearly 90% of physicians in our study mentioned that they had included their patients’ perspective during decisionmaking, the implementation of a participatory decisionmaking model in ITP, which has been in place for cancer management for a considerable period of time, may not be feasible in the Indian context. This could be due to the existing gaps in patient knowledge of the disease and effectiveness of available treatment options. Implementation of a shared-decision model in India needs greater patient education, along with physician awareness and willingness; patient support groups can play a major role in bringing about this change.

A shared-decision model could also help in ensuring that the treatment goals of patients and physicians are completely aligned. Our survey results showed that achievement of healthy blood counts was the most important goal for patients, while for physicians, it was reduction in spontaneous bleeds. Interestingly, improvement in QoL was one of the most important treatment goals for both patients and physicians, underlining the importance of assessing HRQoL among patients with ITP. This was consistent with the global I-WISH data, wherein improvement in QoL was one of the top 3 goals among 38% of patients and 64% of physicians.

Overall, the survey data outcomes and driven conclusions must be interpreted with caution, given the small sample size of the respondents, specifically the patient group. Recall bias and the use of a non-validated HRQoL questionnaire (ILQI) are some of the other limitations of the study. However, the study results need to be considered in the light of the fact that ITP is a rare disease, and currently, in India, there is limited education/awareness among patients regarding the disease.

Conclusion

Based on the overall respondent assessment, the study highlights the need for education/training on all aspects of disease management—especially fatigue, anxiety, and menorrhagia—and general awareness among physicians and patients on disease management, including treatment goals, and the impact of ITP on QoL. Additionally, it also emphasizes some of the neglected aspects of ITP and provides a good starting point for large-scale future studies in this therapy area.
Abbreviations

HCP: healthcare professional; HRQoL: health-related quality of life; ILQI: ITP Life Quality Index; IRB: Institutional Review Board; ITP: Immune thrombocytopenia; IVIgs: intravenous immunoglobulins; I-WiSh: ITP World Impact Survey; QoL: quality of life; TPO-RAs: thrombopoietin receptor agonists

Declarations

Ethics approval and consent to participate: Survey materials and the study protocol were reviewed and approved by a centralized Institutional Review Board (IRB). Patients and physicians were given an overview of the study and the ethical approval details; those who wished to participate were required to provide consent via a tick/check box before initiation.

Consent for publication: Not applicable

Availability of data and materials: Not applicable

Competing interests: Dr. Shashank Udupi is a full-time employee of Novartis Healthcare Private Limited. None of the other authors had any conflict of interest to declare.

Funding: This study was sponsored by Novartis Pharmaceuticals Corporation.

Authors' contributions: All authors contributed in the interpretation of data, writing and critically reviewing the manuscript, and approval of the final draft.

Acknowledgements: We extend enormous thanks to all the patients and physicians who took the time to complete this survey. Funding was provided by Novartis to Adelphi Real World for the survey design, data collection, and data analysis. Tom Bailey coordinated data collection and statistical analysis. We thank Anupama Singh of Novartis Healthcare Private Limited for providing medical writing assistance.

References

1. Michel M, Suzan F, Adoue D, Bordessoule D, Marolleau JP, Viallard JF, et al. Management of immune thrombocytopenia in adults: a population-based analysis of the French hospital discharge database from 2009 to 2012. Br J Haematol. 2015;170(2):218-22.

2. Sestøl HG, Trangbæk SM, Bussel JB, Frederiksen H. Health-related quality of life in adult primary immune thrombocytopenia. Expert Rev Hematol. 2018;11(12):975-85.

3. Neunert C, Terrell DR, Arnold DM, Buchanan G, Cines DB, Cooper N, et al. American Society of Hematology 2019 guidelines for immune thrombocytopenia. Blood Adv. 2019;3(23):3829-66.

4. Provan D, Arnold DM, Bussel JB, Chong BH, Cooper N, Gernsheimer T, et al. Updated international consensus report on the investigation and management of primary immune thrombocytopenia. Blood Adv. 2019;3(22):3780-817.
5. Irving G, Neves AL, Dambha-Miller H, Oishi A, Tagashira H, Verho A, et al. International variations in primary care physician consultation time: a systematic review of 67 countries. BMJ Open. 2017;7(10):e017902.

6. Density of Physicians (Total Number per 1000 Population, Latest Available Year), Global Health Observatory (GHO) Data. Situation and Trends. Available from: http://www.who.int/gho/health_workforce/physicians_density/en/, accessed on 15 Feb 21.

7. Deo MG. "Doctor population ratio for India - the reality". Indian J Med Res. 2013;137(4):632-5.

8. Cooper N, Kruse A, Kruse C, Watson S, Morgan M, Provan D, et al. Immune thrombocytopenia (ITP) World Impact Survey (iWISh): Patient and physician perceptions of diagnosis, signs and symptoms, and treatment. Am J Hematol. 2021;96(2):188-198.

9. Cooper N, Kruse A, Kruse C, Watson S, Morgan M, Provan D, et al. Immune thrombocytopenia (ITP) World Impact Survey (I-WISh): Impact of ITP on health-related quality of life. Am J Hematol. 2021;96(2):199-207.

10. Nampoothiri RV, Singh C, Lad D, Prakash G, Khadwal A, Varma N, et al. Immune Thrombocytopenia is Still the Commonest Diagnosis on Consultative Hematology. Indian J Hematol Blood Transfus. 2019;35(2):352-6.

11. Mishra K, Pramanik S, Jandial A, Sahu KK, Sandal R, Ahuja A, et al. Real-world experience of eltrombopag in immune thrombocytopenia. Am J Blood Res. 2020;10(5):240-51.

12. Griffiths P, Grant L, Bonner N, D’Alessio D, Hill QA, Provan D, et al. The Psychometric Properties of the ITP Life Quality Index Assessed in a Large Multinational "Real-World" Cohort of Immune Thrombocytopenia Patients. Blood. 2019;134(Supplement_1):386.

13. High Level Expert Group Report on Universal Health Coverage for India. Planning Commission of India. New Delhi, November, 2011. Available from: http://nhm.gov.in/images/pdf/publication/Planning_Commission/rep_uhc0812.pdf, accessed on March 19, 2021.

14. Hill QA, Newland AC. Fatigue in immune thrombocytopenia. Br J Haematol. 2015;170(2):141-9.

15. Didzun O, De Neve JW, Awasthi A, Dubey M, Theilmann M, Bärnighausen T, et al. Anaemia among men in India: a nationally representative cross-sectional study. Lancet Glob Health. 2019;7(12):e1685-e94.

16. Kapil U, Bhadoria AS. National Iron-plus initiative guidelines for control of iron deficiency anaemia in India, 2013. Natl Med J India. 2014;27(1):27-9.

17. Shankar B, Agrawal S, Beaudreault AR, Avula L, Martorell R, Osendarp S, et al. Dietary and nutritional change in India: implications for strategies, policies, and interventions. Ann N Y Acad Sci. 2017;1395(1):49-59.

18. Shankar M, Chi C, Kadir RA. Review of quality of life: menorrhagia in women with or without inherited bleeding disorders. Haemophilia. 2008;14(1):15-20.

19. Rajpurkar M, O’Brien SH, Haamid FW, Cooper DL, Gunawardena S, Chitlur M. Heavy Menstrual Bleeding as a Common Presenting Symptom of Rare Platelet Disorders: Illustrative Case Examples. J
20. Rodeghiero F, Marranconi E. Management of immune thrombocytopenia in women: current standards and special considerations. Expert Rev Hematol. 2020;13(2):175-85.

21. Kruse C, Kruse A, Watson S, Morgan M, Cooper N, Ghanima W, et al. Patients with immune thrombocytopenia (ITP) frequently experience severe fatigue but is it under-recognized by physicians: results from the ITP World Impact Survey (I-WiSh). Blood. 2018;132(Supplement 1):2273.

22. Kruse A, Kruse C, Potthast N, Milligan K, Bussel JB. Mental Health and Treatment in Patients with Immune Thrombocytopenia (ITP); Data from the Platelet Disorder Support Association (PDSA) Patient Registry. Blood. 2019;134(Supplement_1):2362.

23. Hurst JR, Agarwal G, van Boven JFM, Daivadanam M, Gould GS, Wan-Chun Huang E, et al. Critical review of multimorbidity outcome measures suitable for low-income and middle-income country settings: perspectives from the Global Alliance for Chronic Diseases (GACD) researchers. BMJ Open. 2020;10(9):e037079.

24. Sriram S, Khan MM. Effect of health insurance program for the poor on out-of-pocket inpatient care cost in India: evidence from a nationally representative cross-sectional survey. BMC Health Serv Res. 2020;20(1):839.

25. Patel V, Parikh R, Nandraj S, Balasubramaniam P, Narayan K, Paul VK, et al. Assuring health coverage for all in India. Lancet. 2015;386(10011):2422-35.

26. Hu A. Reflections: The Value of Patient Support Groups. Otolaryngol Head Neck Surg. 2017;156(4):587-8.

27. ACOG Committee Opinion No. 587: Effective patient-physician communication. Obstet Gynecol. 2014;123(2 Pt 1):389-93.

28. Butow P, Harrison JD, Choy ET, Young JM, Spillane A, Evans A. Health professional and consumer views on involving breast cancer patients in the multidisciplinary discussion of their disease and treatment plan. Cancer. 2007;110(9):1937-44.

29. Wang KKW, Charles C, Heddle NM, Arnold E, Molnar L, Arnold DM. Understanding why patients with immune thrombocytopenia are deeply divided on splenectomy. Health Expect. 2014;17(6):809-17.

**Figures**
Figure 1. Frequency and severity of symptoms of ITP at diagnosis and survey completion – Patient and physician perspective

A. Frequency and severity of symptoms: Patient perspective

At diagnosis

At survey completion

B. Frequency and severity of symptoms: Physician perspective

Figure 1

Frequency and severity of symptoms of ITP at diagnosis and survey completion – Patient and physician perspective
Figure 2. Impact of ITP on QoL – Patient and physician perspective

### A. Patient perspective of impact of ITP on QoL (based on ILQI questionnaire)

| Category                                      | Never | Sometimes | More than half the time | All the time |
|-----------------------------------------------|-------|-----------|-------------------------|--------------|
| Working life/studies (n=50)                   | 34    | 28        | 30                      | 8            |
| Time off work/education (n=49)                | 37    | 31        | 33                      |              |
| Concentration on everyday tasks (n=65)        | 35    | 40        | 20                      | 5            |
| Social life (n=65)                            | 46    | 35        | 14                      | 5            |
| Sex life (n=29)                               | 55    | 34        | 7                       | 3            |
| Energy levels (n=65)                          | 25    | 46        | 26                      | 3            |
| Undertaking of daily tasks (n=65)             | 38    | 43        | 14                      | 5            |
| Ability to support people (n=65)              | 37    | 45        | 9                       | 9            |
| Hobbies (n=65)                                | 35    | 45        | 11                      | 9            |
| Capacity to exercise (n=65)                   | 37    | 43        | 12                      | 8            |

### B. Physician perspective of impact of symptoms on QoL

| Symptom                                      | Percentage of physicians |
|----------------------------------------------|--------------------------|
| Purpura                                       | 19  19  19  19  14  15  5  5 |
| Petechiae                                     | 29  14  10  5  10  5  5  14 |
| Haematoma                                     | 10  24  19  24  19  19  15 |
| Thrombosis                                    | 19  14  5  5  10  10  33 |
| Epitaxis                                      | 10  14  33  19  19  19  15 |
| Bleeding from the gums                        | 14  24  29  14  10  10  10 |
| Prolonged bleeding from cuts                  | 14  5  24  24  10  24 |
| Profuse bleeding during surgery               | 10  5  5  24  10  48 |
| Haematuria or melena, rectal bleeding         | 5  5  10  10  10  10  92 |
| Menorrhagia                                   | 33  19  14  33 |
| Fatigue                                       | 5  19  14  29  14  14  15  5 |
| Moderate to severe headaches/ migraines       | 19  10  19  29  10  19  19 |
| Dizziness                                     | 19  10  19  24  5  14  10  10 |
| Depression/ Psychological symptoms            | 14  15  10  33  14  19  15  5 |
| Sequelae                                      | 10  19  14  38  10  10 |
| Anxiety surrounding unstable platelet count   | 10  19  14  19  19  19 |

Figure 2

Impact of ITP on QoL – Patient and physician perspective
**Figure 3. Treatment goals**

### A. Patient and physician perspective

| Patient                          | Physician                        |
|----------------------------------|----------------------------------|
| Healthy blood counts             | Reduction in spontaneous bleeding |
| Improvement in QoL               | Improvement in QoL               |
| Prevent episodes of worsening of ITP | Improve overall symptoms         |
| Reduction in spontaneous bleeding| Healthy blood counts             |
| Improve overall symptoms         | Reduce fatigue                   |

- **Patient**
  - Healthy blood counts: 65%
  - Improvement in QoL: 54%
  - Prevent episodes of worsening of ITP: 51%
  - Reduction in spontaneous bleeding: 28%
  - Improve overall symptoms: 26%

- **Physician**
  - Reduction in spontaneous bleeding: 81%
  - Improvement in QoL: 67%
  - Improve overall symptoms: 43%
  - Healthy blood counts: 29%
  - Reduce fatigue: 24%

### B. Physician perspective on agreement with treatment goal statements

- My main aim of ITP treatment is to limit immunosuppressive side effects of treatment: 10 - 14 - 10 - 5 - 48 - 14
- I discuss treatment goals with my ITP patients and we agree on these together: 14 - 10 - 38 - 38
- My ITP patients understand the treatment goals I have set out: 10 - 5 - 43 - 24 - 19

**Percentage of physicians**

- 1 - Strongly disagree
- 2
- 3
- 4
- 5
- 6
- 7 - Strongly agree

---

**Figure 3**

Treatment goals
Figure 4. Management of ITP – Prescribed treatments

Figure 4
Management of ITP – Prescribed treatments

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- FigureS1.tif
- FigureS2.tif
- FigureS3.tif
- FigureS4.tif
- FigureS5.tif